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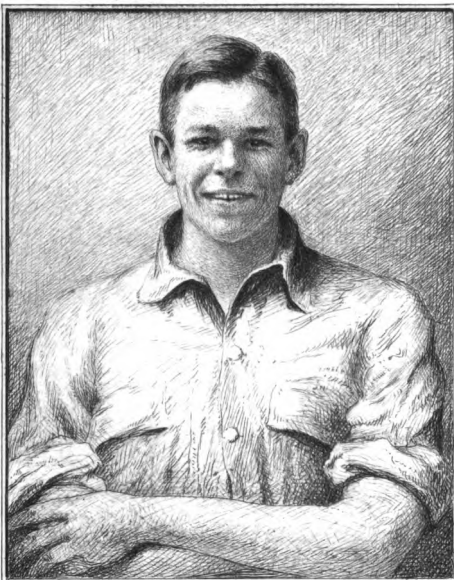
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STEPHEN SPAULDING
1907 - 1925
class of 1927
UNIVERSITY OF MICHIGAN

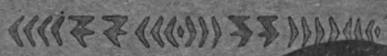
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THE HAWAIIAN ANNUAL

THE REFERENCE BOOK OF HAWAII



Issued Regularly
since 1875



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1918



THOS. G. THURM
Publisher
Honolulu T. H.



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HAWAIIAN

ALMANAC AND ANNUAL

FOR



THE REFERENCE BOOK OF INFORMATION
AND STATISTICS

Relating to the Territory of Hawaii, of Value to
Merchants, Tourists and Others

THOS. G. THRUM

Compiler and Publisher

Forty-Fourth Year of Publication

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HONOLULU

1917

Counting House

1918 Calendar 1918

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY		SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
JAN.	6	7	8	9	10	11	12	JULY	7	8	9	10	11	12	13
	13	14	15	16	17	18	19		14	15	16	17	18	19	20
	20	21	22	23	24	25	26		21	22	23	24	25	26	27
	27	28	29	30	31				28	29	30	31			
	3	4	5	6	7	8	9	AUG.	4	5	6	7	8	9	10
FEB.	10	11	12	13	14	15	16		11	12	13	14	15	16	17
	17	18	19	20	21	22	23		18	19	20	21	22	23	24
	24	25	26	27	28				25	26	27	28	29	30	31
	3	4	5	6	7	8	9	SEPT.	1	2	3	4	5	6	7
MAR.	10	11	12	13	14	15	16		8	9	10	11	12	13	14
	17	18	19	20	21	22	23		15	16	17	18	19	20	21
	24	25	26	27	28	29	30		22	23	24	25	26	27	28
	31								29	30					
	7	8	9	10	11	12	13	OCT.	6	7	8	9	10	11	12
APR.	14	15	16	17	18	19	20		13	14	15	16	17	18	19
	21	22	23	24	25	26	27		20	21	22	23	24	25	26
	28	29	30						27	28	29	30	31		
	5	6	7	8	9	10	11	NOV.	3	4	5	6	7	8	9
MAY	12	13	14	15	16	17	18		10	11	12	13	14	15	16
	19	20	21	22	23	24	25		17	18	19	20	21	22	23
	26	27	28	29	30	31			24	25	26	27	28	29	30
	2	3	4	5	6	7	8	DEC.	1	2	3	4	5	6	7
JUNE	9	10	11	12	13	14	15		8	9	10	11	12	13	14
	16	17	18	19	20	21	22		15	16	17	18	19	20	21
	23	24	25	26	27	28	29		22	23	24	25	26	27	28
	30								29	30	31				

Thos. G. Thrum

RESEARCHER AND PUBLISHER

The Hawaiian Annual

HONOLULU, HAWAII

Maj. Spaulding
 9-26-1923
 Stephen Spaulding, Mem. Coll.
 SS1181 (Apr. 1938)

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HAWAIIAN ANNUAL CALENDAR FOR 1918.

Second half of the twentieth year and first half of the twenty-first year since annexation of Hawaii with the United States.

Twenty-third year since the downfall of the Monarchy.

The 140th year since the discovery of the Hawaiian Islands by Captain Cook.

Holidays Observed at the Hawaiian Islands.

*New Year	Jan. 1	*Birthday Hawn. Republic.	July 4
Chinese New Year	Feb. 10	*American Anniversary ..	July 4
Lincoln's Birthday	Feb. 12	Labor Day (1st Monday).	Sept. 2
*Washington's Birthday ..	Feb. 22	*Regatta Day (3d Saturday) ..	
*Decoration Day	May 30	.....	Sept. 21
Kamehameha Day	June 11	Thanksgiving Day	Nov. 23
		*Christmas Day	Dec. 25

* Those distinguished by the asterisk have been established by law.

Church Days.

Epiphany	Jan. 6	Ascension Day	May 9
Ash Wednesday	Feb. 13	Whit Sunday	May 19
First Sunday in Lent.....	Feb. 17	Trinity Sunday	May 26
Palm Sunday	Mch. 24	Corpus Christi	May 30
Good Friday	Mch. 29	Advent Sunday	Dec. 1
Easter Sunday	Mch. 31	Christmas	Dec. 25

Eclipses in 1918.

Courtesy of E. H. Bryan, Jr., College of Hawaii.

During the year 1918 there will be three eclipses, two of the Sun and one of the Moon, as follows:—

I. Total eclipse of the Sun June 8, visible in the Hawaiian Islands as a partial eclipse.

Beginning of the eclipse.....10:31 A.M.

Middle of the eclipse 11:13 A.M. |

Ending of the eclipse 12:00 noon |

Magnitude of the eclipse at Honolulu, 0.09.

Note: The path of the total eclipse will pass across the United States, from Washington to Florida, through Denver, Colorado.

II. Partial eclipse of the moon, June 23-24, visible in the Hawaiian Islands, June 24.

Moon enters shadow.....12h. 51m. 46s. A.M.

Middle of the eclipse 12h. 52m. 28s. A.M. |

Moon leaves shadow 12h. 53m. 10s. A.M. |

Duration of the eclipse 1m. 24s. |

Magnitude of eclipse, 0.135, Moon's diameter—1.00

III. Annular eclipse of the sun December 3, invisible in the Hawaiian Islands.

See page 179 for Interesting Phenomena, 1918.

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FIRST QUARTER, 1918

JANUARY				FEBRUARY				MARCH			
D.		H. M.		D.		H. M.		D.		H. M.	
5	Last Quar.	1.19 6 a.m.		3	Last Quar.	9.22.0 p.m.		5	Last Quar.	2.13.6 p.m.	
12	New Moon	0.05.8 p.m.		10	New Moon	11.34.6 p.m.		12	New Moon	9.22.4 a.m.	
19	First Quar.	4.07.9 a.m.		17	First Quar.	2.26.9 p.m.		19	First Quar.	3.00.4 a.m.	
26	Full Moon	4.44.2 p.m.		25	Full Moon	11.04.6 a.m.		27	Full Moon	5.02.8 a.m.	
Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....	Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....	Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....
		H. M.	H. M.			H. M.	H. M.			H. M.	H. M.
1	Tues.	6 38 15	30 1	1	Fri...	6 37 45	50 6	1	Fri...	6 20 36	4 7
2	Wed..	6 38 45	30 7	2	Sat...	6 37 05	51 3	2	Sat...	6 19 56	5 0
3	Thurs	6 38 75	31 4	3	SUN..	6 36 65	51 9	3	SUN..	6 18 76	5 4
4	Fri...	6 38 95	32 1	4	Mon..	6 36 25	52 5	4	Mon..	6 17 96	5 8
5	Sat...	6 39 15	32 8	5	Tues..	6 35 75	53 1	5	Tues..	6 17 06	6 2
6	SUN..	6 39 35	33 4	6	Wed..	6 35 35	53 7	6	Wed..	6 16 26	6 6
7	Mon..	6 39 55	34 1	7	Thurs	6 34 85	54 2	7	Thurs	6 15 46	6 9
8	Tues..	6 39 75	34 8	8	Fri...	6 34 35	54 8	8	Fri...	6 14 56	7 3
9	Wed..	6 39 95	35 5	9	Sat...	6 33 85	55 3	9	Sat...	6 13 76	7 7
10	Thurs	6 40 15	36 2	10	SUN..	6 33 25	55 8	10	SUN..	6 12 86	8 0
11	Fri...	6 40 25	36 9	11	Mon..	6 32 85	56 3	11	Mon..	6 11 96	8 4
12	Sat...	6 40 35	37 5	12	Tues..	6 32 25	56 8	12	Tues..	6 11 06	8 7
13	SUN..	6 40 45	38 2	13	Wed..	6 31 65	57 3	13	Wed..	6 10 16	9 0
14	Mon..	6 40 45	38 9	14	Thurs	6 31 05	57 9	14	Thurs	6 9 26	9 3
15	Tues..	6 40 45	39 6	15	Fri...	6 30 45	58 4	15	Fri...	6 8 36	9 7
16	Wed..	6 40 45	40 3	16	Sat...	6 29 85	58 9	16	Sat...	6 7 46	10 0
17	Thurs	6 40 45	40 9	17	SUN..	6 29 15	59 4	17	SUN..	6 6 56	10 3
18	Fri...	6 40 35	41 6	18	Mon..	6 28 56	59 9	18	Mon..	6 5 66	10 6
19	Sat...	6 40 35	42 3	19	Tues..	6 27 86	0 4	19	Tues..	6 4 76	10 9
20	SUN..	6 40 25	43 0	20	Wed..	6 27 16	0 9	20	Wed..	6 3 86	11 2
21	Mon..	6 40 15	43 6	21	Thurs	6 26 56	1 3	21	Thurs	6 2 96	11 6
22	Tues..	6 39 95	44 3	22	Fri...	6 25 86	1 8	22	Fri...	6 2 06	11 9
23	Wed..	6 39 85	45 0	23	Sat...	6 25 16	2 2	23	Sat...	6 1 16	12 2
24	Thurs	6 39 65	45 7	24	SUN..	6 24 36	2 6	24	SUN..	6 0 16	12 5
25	Fri...	6 39 45	46 3	25	Mon..	6 23 56	3 0	25	Mon..	5 59 26	12 8
26	Sat...	6 39 25	46 9	26	Tues..	6 22 76	3 4	26	Tues..	5 58 36	13 1
27	SUN..	6 39 05	47 5	27	Wed..	6 21 96	3 8	27	Wed..	5 57 36	13 4
28	Mon..	6 38 75	48 1	28	Thurs	6 21 16	4 2	28	Thurs	5 56 46	13 7
29	Tues..	6 38 45	48 8					29	Fri...	5 55 56	14 0
30	Wed..	6 38 05	49 4					30	Sat...	5 54 66	14 4
31	Thurs	6 37 75	50 0					31	SUN..	5 53 76	14 7

VOLCANO OF KILAUEA, ISLAND OF HAWAII.

Corrected for Deflection of the Vertical.

Area, 4.14 square miles, or 2,650 acres.

Circumference, 41,500 feet, or 7.85 miles.

Extreme width, 10,300 feet, or 1.95 miles.

Extreme length, 15,500 feet, or 2.93 miles.

Elevation, Volcano House, 4,000 feet.

SECOND QUARTER, 1918

APRIL				MAY				JUNE			
D.		H. M.		D.		H. M.		D.		H. M.	
4	Last Quar.	3.03.1 a.m.		3	Last Quar.	11.56.2 a.m.		1	Last Quar.	5.50.0 p.m.	
10	New Moon	6.04.3 p.m.		10	New Moon	2.30.9 a.m.		8	New Moon	11.32.7 a.m.	
17	First Quar.	5.37.7 p.m.		17	First Quar.	9.44.3 a.m.		16	First Quar.	2.41.7 a.m.	
25	Full Moon.	9.35.4 p.m.		25	Full Moon	0.02.4 p.m.		24	Full Moon	0.08.3 a.m.	
30	Last Quar.	10.12.9 p.m.						30	Last Quar.	10.12.9 p.m.	
Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets....	Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets....	Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets....
		H. M.	H. M.			H. M.	H. M.			H. M.	H. M.
1	Mon..	5 52 8	6 15 0	1	Wed..	5 28 8	6 25 2	1	Sat...	5 17 2	6 38 2
2	Tues..	5 51 9	6 15 3	2	Thurs	5 28 2	6 25 6	2	SUN..	5 17 1	6 38 6
3	Wed..	5 51 0	6 15 6	3	Fri...	5 27 6	6 26 0	3	Mon..	5 17 1	6 39 0
4	Thurs	5 50 1	6 16 0	4	Sat...	5 27 0	6 26 4	4	Tues..	5 17 0	6 39 4
5	Fri...	5 49 2	6 16 3	5	SUN..	5 26 4	6 26 8	5	Wed..	5 17 0	6 39 8
6	Sat...	5 48 3	6 16 6	6	Mon..	5 25 8	6 27 2	6	Thurs	5 17 0	6 40 1
7	SUN..	5 47 4	6 16 9	7	Tues..	5 25 3	6 27 6	7	Fri...	5 17 0	6 40 5
8	Mon..	5 46 5	6 17 2	8	Wed..	5 24 7	6 28 0	8	Sat...	5 16 9	6 40 9
9	Tues..	5 45 6	6 17 5	9	Thurs	5 24 3	6 28 5	9	SUN..	5 16 9	6 41 2
10	Wed..	5 44 8	6 17 8	10	Fri...	5 23 8	6 28 9	10	Mon..	5 17 0	6 41 5
11	Thurs	5 44 0	6 18 1	11	Sat...	5 23 4	6 29 3	11	Tues..	5 17 1	6 41 9
12	Fri...	5 43 2	6 18 4	12	SUN..	5 22 9	6 29 2	12	Wed..	5 17 2	6 42 2
13	Sat...	5 42 3	6 18 8	13	Mon..	5 22 4	6 30 6	13	Thurs	5 17 3	6 42 5
14	SUN..	5 41 5	6 19 1	14	Tues..	5 22 0	6 30 0	14	Fri...	5 17 5	6 42 8
15	Mon..	5 40 7	6 19 4	15	Wed..	5 21 6	6 31 4	15	Sat...	5 17 6	6 43 1
16	Tues..	5 39 9	6 19 8	16	Thurs	5 21 2	6 31 9	16	SUN..	5 17 7	6 43 4
17	Wed..	5 39 0	6 20 1	17	Fri...	5 20 8	6 31 3	17	Mon..	5 18 9	6 43 6
18	Thurs	5 38 2	6 20 5	18	Sat...	5 20 5	6 32 7	18	Tues..	5 18 0	6 43 9
19	Fri...	5 37 4	6 20 8	19	SUN..	5 20 2	6 32 1	19	Wed..	5 18 2	6 44 1
20	Sat...	5 36 6	6 21 2	20	Mon..	5 19 8	6 33 6	20	Thurs	5 18 4	6 44 4
21	SUN..	5 35 8	6 21 5	21	Tues..	5 19 5	6 33 0	21	Fri...	5 18 6	6 44 6
22	Mon..	5 35 0	6 21 9	22	Wed..	5 19 2	6 34 4	22	Sat...	5 19 8	6 44 7
23	Tues..	5 34 3	6 22 3	23	Thurs	5 18 8	6 34 8	23	SUN..	5 19 1	6 44 9
24	Wed..	5 33 6	6 22 6	24	Fri...	5 18 5	6 35 4	24	Mon..	5 19 4	6 45 1
25	Thurs	5 32 9	6 23 0	25	Sat...	5 18 3	6 35 1	25	Tues..	5 19 6	6 45 2
26	Fri...	5 32 2	6 23 3	26	SUN..	5 18 1	6 35 8	26	Wed..	5 19 9	6 45 4
27	Sat...	5 31 4	6 23 7	27	Mon..	5 17 9	6 36 2	27	Thurs	5 20 2	6 45 5
28	SUN..	5 30 8	6 24 1	28	Tues..	5 17 7	6 36 6	28	Fri...	5 20 5	6 45 6
29	Mon..	5 30 1	6 24 5	29	Wed..	5 17 5	6 37 0	29	Sat...	5 20 8	6 45 7
30	Tues..	5 29 5	6 24 9	30	Thurs	5 17 4	6 37 4	30	SUN..	5 21 1	6 45 8
				31	Fri...	5 17 3	6 37 8				

MOKUAWEOWEO.

The Summit Crater of Mauna Loa, Island of Hawaii.

Area, 3.70 square miles, or 2,370 acres.

Circumference, 50,000 feet, or 9.47 miles.

Length, 19,500 feet, or 3.7 miles.

Width, 9,20 feet, or 1.74 miles. Elevation of summit, 13,675 feet.

THIRD QUARTER, 1918

JULY				AUGUST				SEPTEMBER			
D.		H. M.		D.		H. M.		D.		H. M.	
7	New Moon	9 52.1 p.m.		9	Full Moon	9 59.6 a.m.		5	New Moon	0 13.7 a.m.	
15	First Quar.	7 54.7 p.m.		14	First Quar.	0 48.4 p.m.		13	First Quar.	4 32.3 a.m.	
23	Full Moon	10 04.8 a.m.		21	Full Moon	6 32.3 p.m.		20	Full Moon	2 30.9 a.m.	
30	Last Quar.	2 43.9 a.m.		28	Last Quar.	8 57.1 a.m.		26	Last Quar.	6 08.6 p.m.	
Day of Mo...	Day of Wk...	Sun Rises...	Sun Sets...	Day of Mo...	Day of Wk...	Sun Rises...	Sun Sets...	Day of Mo...	Day of Wk...	Sun Rises...	Sun Sets...
		H. M.	H. M.			H. M.	H. M.			H. M.	H. M.
1	Mon...	5 21 46	45 8	1	Thurs	5 33 06	38 5	1	SUN.	5 43 46	15 7
2	Tues.	5 21 76	45 8	2	Fri...	5 33 76	38 0	2	Mon...	5 43 76	14 8
3	Wed...	5 22 16	45 9	3	Sat...	5 34 16	37 4	3	Tues.	5 43 96	13 9
4	Thurs	5 22 46	45 8	4	SUN.	5 34 46	36 9	4	Wed...	5 44 26	13 0
5	Fri...	5 22 86	45 8	5	Mon...	5 34 86	36 3	5	Thurs	5 44 56	12 0
6	Sat...	5 23 16	45 8	6	Tues.	5 35 26	35 7	6	Fri...	5 44 76	11 1
7	SUN.	5 23 56	45 8	7	Wed...	5 35 66	35 1	7	Sat...	5 45 06	10 2
8	Mon...	5 23 86	45 7	8	Thurs	5 36 96	34 5	8	SUN.	5 45 36	9 2
9	Tues.	5 24 26	45 6	9	Fri...	5 36 36	33 8	9	Mon...	5 45 56	8 3
10	Wed...	5 24 56	45 5	10	Sat...	5 36 66	33 2	10	Tues.	5 45 86	7 3
11	Thurs	5 24 96	45 4	11	SUN.	5 37 06	32 5	11	Wed...	5 46 06	6 4
12	Fri...	5 25 46	45 3	12	Mon...	5 37 36	31 8	12	Thurs	5 46 36	5 4
13	Sat...	5 25 86	45 1	13	Tues.	5 37 76	31 1	13	Fri...	5 46 56	4 4
14	SUN.	5 26 26	44 9	14	Wed...	5 38 06	30 4	14	Sat...	5 46 86	3 5
15	Mon...	5 26 66	44 7	15	Thurs	5 38 36	29 7	15	SUN.	5 47 06	2 5
16	Tues.	5 27 06	44 5	16	Fri...	5 38 76	29 0	16	Mon...	5 47 36	1 6
17	Wed...	5 27 46	44 3	17	Sat...	5 39 06	28 2	17	Tues.	5 47 56	0 6
18	Thurs	5 27 86	44 1	18	SUN.	5 39 36	27 5	18	Wed...	5 47 85	59 7
19	Fri...	5 28 26	43 8	19	Mon...	5 39 66	26 7	19	Thurs	5 48 05	58 7
20	Sat...	5 28 66	43 5	20	Tues.	5 39 96	25 9	20	Fri...	5 48 35	57 8
21	SUN.	5 29 06	43 2	21	Wed...	5 40 36	25 1	21	Sat...	5 48 55	56 8
22	Mon...	5 29 46	42 8	22	Thurs	5 40 66	24 3	22	SUN.	5 48 85	55 9
23	Tues.	5 29 86	42 5	23	Fri...	5 40 96	23 5	23	Mon...	5 49 05	54 9
24	Wed...	5 30 26	42 1	24	Sat...	5 41 26	22 6	24	Tues.	5 49 35	53 9
25	Thurs	5 30 66	41 7	25	SUN.	5 41 46	21 8	25	Wed...	5 49 65	53 0
26	Fri...	5 31 06	41 3	26	Mon...	5 41 76	20 9	26	Thurs	5 49 85	52 1
27	Sat...	5 31 46	40 9	27	Tues.	5 42 06	20 1	27	Fri...	5 50 15	51 1
28	SUN.	5 31 86	40 5	28	Wed...	5 42 36	19 2	28	Sat...	5 50 45	50 2
29	Mon...	5 32 26	40 0	29	Thurs	5 42 66	18 3	29	SUN.	5 50 75	49 2
30	Tues	5 32 56	39 5	30	Fri...	5 42 96	17 4	30	Mon...	5 51 05	48 3
31	Wed...	5 32 96	39 0	31	Sat...	5 43 26	16 6				

IAO VALLEY, ISLAND OF MAUI.

Length (from Walluku), about 5 miles.

Width of Valley, 2 miles.

Depth, near head, 4,000 feet.

Elevation of Puu Kukui, above head of Valley, 5,700 feet.

Elevation of Crater of Eke, above Waihee Valley, 4,500 feet.

FOURTH QUARTER, 1918.

OCTOBER				NOVEMBER				DECEMBER			
D.	H. M.			D.	H. M.			D.	H. M.		
4	New Moon	4	35.2 p.m.	3	New Moon	10	31.6 a.m.	3	New Moon	4	45.3 a.m.
12	First Quar.	6	30.0 p.m.	11	First Quar.	6	16.2 a.m.	10	First Quar.	4	01.4 p.m.
19	Full Moon	11	04.8 a.m.	17	Full Moon	9	03.0 p.m.	17	Full Moon	8	47.5 a.m.
26	Last Quar.	7	05.4 a.m.	24	Last Quar	11	55.3 p.m.	24	Last Quar.	8	00.6 p.m.
Day of Mo...	Day of Wk...	Sun Rises...	Sun Sets...	Day of Mo...	Day of Wk...	Sun Rises...	Sun Sets...	Day of Mo...	Day of Wk...	Sun Rises...	Sun Sets...
		H. M.	H. M.			H. M.	H. M.			H. M.	H. M.
1	Tues.	5 51	35 47	4	Fri....	6 3 35	23 9	1	SUN.	6 21	55 17
2	Wed...	5 51	65 46	5	Sat....	6 3 85	23 3	2	Mon...	6 22	25 17
3	Thurs	5 51	85 45	6	SUN.	6 4 35	22 8	3	Tues.	6 22	85 17
4	Fri....	5 52	15 44	7	Mon...	6 4 95	22 4	4	Wed...	6 23	55 17
5	Sat...	5 52	45 43	8	Tues.	6 5 45	21 9	5	Thurs	6 24	25 17
6	SUN.	5 52	75 42	9	Wed...	6 6 05	21 4	6	Fri....	6 24	85 18
7	Mon...	5 53	15 42	10	Thurs	6 6 55	21 0	7	Sat....	6 25	45 18
8	Tues.	5 53	45 41	11	Fri....	6 7 15	20 7	8	SUN.	6 26	05 18
9	Wed...	5 53	85 40	12	Sat...	6 7 65	20 2	9	Mon...	6 26	65 19
10	Thurs	5 54	15 39	13	SUN.	6 8 25	19 9	10	Tues.	6 27	35 19
11	Fri....	5 54	55 38	14	Mon...	6 8 95	19 5	11	Wed...	6 27	95 19
12	Sat...	5 54	85 37	15	Tues.	6 9 55	19 2	12	Thurs	6 28	55 19
13	SUN.	5 55	15 36	16	Wed...	6 10 15	18 9	13	Fri...	6 29	15 20
14	Mon...	5 55	55 36	17	Thurs	6 10 75	18 6	14	Sat...	6 29	75 20
15	Tues.	5 55	85 35	18	Fri....	6 11 35	18 3	15	SUN.	6 30	35 21
16	Wed...	5 56	25 34	19	Sat...	6 11 95	18 0	16	Mon...	6 30	85 21
17	Thurs	5 56	65 33	20	SUN.	6 12 55	17 8	17	Tues.	6 31	45 21
18	Fri....	5 56	95 32	21	Mon...	6 13 15	17 6	18	Wed...	6 31	95 22
19	Sat...	5 57	35 32	22	Tues.	6 13 75	17 4	19	Thurs	6 32	55 22
20	SUN.	5 57	75 31	23	Wed...	6 14 35	17 2	20	Fri....	6 33	05 23
21	Mon...	5 58	25 30	24	Thurs	6 15 05	17 1	21	Sat...	6 33	55 23
22	Tues.	5 58	65 30	25	Fri....	6 15 75	17 1	22	SUN.	6 34	05 24
23	Wed...	5 59	15 29	26	Sat...	6 16 35	17 0	23	Mon...	6 34	55 24
24	Thurs	5 59	55 28	27	SUN.	6 17 05	17 0	24	Tues.	6 35	05 25
25	Fri....	6 0 05	28 0	28	Mon...	6 17 65	17 0	25	Wed...	6 35	55 25
26	Sat...	6 0 45	27 4	29	Tues.	6 18 25	17 0	26	Thurs	6 35	95 26
27	SUN.	6 0 95	26 7	30	Wed...	6 18 95	17 0	27	Fri....	6 36	35 27
28	Mon...	6 1 45	26 1	31	Thurs	6 19 65	17 1	28	Sat...	6 36	65 27
29	Tues.	6 1 85	25 5		Fri...	6 20 25	17 1	29	SUN.	6 37	05 28
30	Wed...	6 2 35	24 9		Sat...	6 20 95	17 2	30	Mon...	6 37	35 28
31	Thurs	6 2 85	24 4					31	Tues.	6 37	75 28

HALEAKALA, ISLAND OF MAUI.

The great Crater of Maui, the largest in the world.

Area, 19 square miles, or 12,160 acres.

Circumference, 105,600 feet, or 20 miles.

Extreme width, 2.37 miles.

Extreme length, 39,500 feet, or 7.48 miles.

Elevation to summit, 10,032 feet.

Elevation of principal cones in crater, 8,032 and 1,572 feet.

Elevation of cave in floor of crater, 7,380 feet.

INTER-ISLAND DISTANCES BY SEA IN SEA MILES.

AROUND OAHU FROM HONOLULU—ESPLANADE WHARF TO

	Miles.		Miles.
Bell Buoy	1¼	Pearl River Bar.....	6
Diamond Head	5	Barber's Point	15
Koko Head	12	Waianae Anchorage	26
Makapuu Point	16	Kaena Point, N. W. of Oahu....	36
Mokapu	27	Waialua Anchorage	46
Kahuku North Point.....	48	Kahuku N. Pt., Oahu, via Kaena.	58

HONOLULU TO

Lae o ka Laau, S. W. Pt. Molokai	35	Mahukona, Hawaii.....	134
Kalaupapa, Leper Settlement..	52	Kawaihae, "	144
West Point of Lanai.....	50	Kealakekua, " (direct)	157
Lahaina, Maui.....	72	S. W. Pt. "	233
Kahului, "	90	Punaluu, "	250
Hana, "	128	Hilo, " (direct)	192
Maalaea, "	86	" " (windward)	206
Makena, "	96	" " (via Kawaihae).....	230

HONOLULU TO

Nawiliwili, Kauai.....	98	Hanalei, Kauai	125
Koloa, "	102	Niihau	144
Waimea, "	120		

LAHAINA, MAUI, TO

Kaluaaha, Molokai	17	Maalaea, Maui	12
Lanai	9	Makena, Maui	18

KAWAIIHAE, HAWAII, TO

Mahukona, Hawaii	10	Hilo, Hawaii	85
Waipio, Hawaii	37	Lae o ka Mano, Hawaii.....	20
Honokaa, Hawaii	45	Kailua, Hawaii	34
Laupahoehoe, Hawaii	62	Kealakekua, Hawaii	44

HILO, HAWAII, TO

East Point of Hawaii.....	20	Punaluu, Hawaii	70
Keauhou, Kau, Hawaii.....	50	Kaalualu, Hawaii	80
North Point of Hawaii.....	62	South Point of Hawaii.....	85

WIDTH OF CHANNELS.

Oahu and Molokai.....	23	Maui and Lanai.....	7
Diamond Head to S. W. Point of Molokai	30	Maui and Kahoolawe.....	6
Molokai and Lanai.....	7	Hawaii and Maui.....	26
Molokai and Maui.....	8	Kauai and Oahu.....	63
		Niihau and Kauai.....	15

OCEAN DISTANCES.

HONOLULU TO

San Francisco	2100	Auckland	3810
San Diego	2260	Sydney	4410
Portland, Or.	2360	Hongkong	4920
Brito, Nicaragua	4200	Yokohama	3400
Panama	4720	Guam	3300
Tahiti	2440	Manila, via N. E. Cape.....	4890
Samoa	2290	Victoria, B. C.....	2460
Fiji	2700	Midway Islands	1200

OVERLAND DISTANCES.

ISLAND OF OAHU.

HONOLULU POST-OFFICE TO

	Miles.		Miles.	Inter.
Bishop's corner (Waikiki).....	3.2	Punaluu	28.4	2.0
Waikiki Villa	3.6	Hauula	31.4	3.0
Diamond Head	5.9	Laie	34.4	3.0
Kaalawai	6.0	Kahuku Mill	37.2	2.8
	Miles. Inter.	Kahuku Ranch	40.0	2.8
Thomas Square	1.0			
Pawaa corners	2.0	Moanalua	3.4	
Kamoiiliili	3.3	Kalauao	7.4	4.0
Kaimuki Hill Reservoir	5.0	Ewa Church	10.2	2.8
Waialae	6.2	Kipapa	13.6	3.4
Niu	8.8	Kaukonahua	20.0	6.4
Koko Head	11.8	Leilehua	20.0	
Makapuu	14.8	Waialua	28.0	8.0
Waimanalo	20.8	Waimea	32.4	4.4
Waimanalo, via Pali.....	12.0	Kahuku Ranch	39.4	7.0
Nuuanu Bridge	1.1			
Mausoleum	1.5	Ewa Church	10.2	
Electric Reservoir	2.7	Waipio (Brown's)	11.2	1.0
Luakaha	4.3	Hoeaie (Robinson's) ..	13.5	2.3
Nuuanu Dam	5.0	Barber's Point, L. H. ...	21.5	8.0
Pali	6.6	Nanakuli	23.5	2.0
Kaneohe	11.9	Waianae Plantation ..	29.9	6.4
Waiahole	18.9	Kahanahaiki	36.9	7.0
Kualoa	21.9	Kaena Point	42.0	5.1
Kahana	26.4	Waialua to Kaena Pt. ...	12.0	

ISLAND OF HAWAII.

SOUTH KOHALA.—WAIMEA COURT HOUSE, TO

	Miles.	Inter.		Miles.	Inter.
Hamakua boundary ...	4.5	..	Hilo, via Humuula Stn. ...	54.0	25.0
Kukuihaele Mill	11.0	6.5	Keamuku Sheep Stn. ...	14.0	..
Mana	7.7	..	Napuu	22.0	8.0
Hanaipoe	15.0	7.3	Keawewai	8.0	..
Keanakolu	24.0	9.0	Waika	11.0	3.0
Puakala	34.0	10.0	Kahuwa	13.0	2.0
Laumaia	36.5	2.5	Puuhue	17.0	4.0
Auwaiakekua	12.5	..	Kohala Court House ..	22.0	5.0
Humuula Sheep Station ..	29.0	16.5	Mahukona	22.0	..
via Laumaia	47.5	..	Puako	12.0	..

NORTH KOHALA.—FOREIGN CHURCH, KOHALA, TO

	Miles.		Miles.
Edge of Pololu Gulch.....	4.00	Union Mill	2.25
Niuli Mill	2.80	Union Mill R. R. Station.....	3.25
Halawa Mill	1.65	Honomakau	2.55
Hapuu Landing	2.15	Hind's, Hawi	3.25
Kohala Mill .....	.50	Hawi R. R. Station	4.25
Kohala Mill Landing	1.50	Honoipu	7.25
Native Church	1.00	Mahukona	10.50
		Puuhue Ranch	7.25

NORTH KOHALA.—ON MAIN ROAD, MAHUKONA TO

	Miles.	Inter.		Miles.	Inter.
Hind's Mill	7.0	..	Wight's Corner	11.5	1.1
Union Mill Corner....	8.0	1.0	Niuli Corner	12.8	1.3
Court House	9.2	1.2	Pololu Edge of Gulch...	14.5	1.7
Bond's Corner	9.7	0.5	Puu Hue	5.0	..
Kohala Mill Corner....	10.4	0.7			

SOUTH KOHALA.—KAWAIHAE TO

	Miles.	Inter.		Miles.
Puu Ainako	4.4	..	Mana, Parker's	19.5
Puuiki	7.7	3.3	Keawewai	6.0
Walaka, Catholic Ch...	9.5	1.8	Puuhue Ranch	10.0
Puuopelu, Parker's	10.8	1.3	Kohala Court House	15.0
Waimea Court House...	11.8	1.0	Mahukona	11.0
Waimea Church	12.2	0.4	Napuu	20.0
Kukuihaele Church	22.1	9.9	Puako	5.0

KONA.—KEALAKEKUA TO

	Miles.	Inter.		Miles.	Inter.
Keauhou	6.0	..	Kawaihae	42.0	4.6
Holualoa	9.6	3.6	Honaunau	4.0	..
Kailua	12.0	2.4	Hookena	7.7	3.7
Kaloko	16.0	4.0	Olelomoana	15.2	7.5
Makalawena	19.6	3.6	Hoopulua	21.6	6.4
Kiholo	27.6	8.0	Boundary of Kau.....	24.8	3.2
Ke Au a Lono bound'ry.	31.6	4.0	Flow of '87.....	32.0	7.2
Puako	37.4	5.8	Kahuku Ranch	36.5	4.5

KAU.—VOLCANO HOUSE TO

	Miles.	Inter.		Miles.	Inter.
Half-way House	13.0	..	Honuapo	32.6	5.0
Kapapala	18.0	5.0	Naalehu	35.6	3.0
Pahala	23.0	5.0	Waiohinu	37.1	1.5
Punaluu	27.6	4.6	Kahuku Ranch	43.1	6.0

PUNA.—HILO COURT HOUSE TO

	Miles.		Miles.
Keauu, Forks of Road.....	9.0	Kaimu	32.0
Pahoa	20.0	Kalapana	33.0
Pohoiiki	28.0	Keauhou	50.0
Kapoho (Lyman's)	32.0	Panau	40.0
Opihikao	31.0	Volcano House via Panau....	56.0
Kamaili	26.0	Sand Hills, Naawale, old road.	18.5
Kamaili Beach	29.0	Kapoho, old road	22.0

TO VOLCANO.—HILO TO

	Miles.		Miles.
Shipman's	1.7	Mountain View	16.8
Edge of Woods	4.1	Mason's	17.5
Coconut Grove	8.0	Hitchcock's	23.5
Branch Road to Puna.....	9.0	Cattle Pen	24.7
Furneaux's	13.2	Volcano House	31.0

THROUGH HILO DISTRICT TO

	Miles.		Miles.
Honolili Bridge	2.5	Honohina Church	17.8
Papaikou Office	4.7	Waikaumalo Bridge	18.8
Onomea Church	6.9	Pohakupuka Bridge	21.0
Kaupakuea Cross Road	10.7	Maulua Gulch	22.0
Kolekole Bridge	14.3	Kaiwilahilahi Bridge	24.0
Hakalau, east edge gulch....	15.0	Lydgate's House	26.1
Umauma Bridge	16.0	Laupahoehoe Church	26.7

THROUGH HAMAKUA.—LAUPAHOEHOE CHURCH TO

	Miles.		Miles.
Bottom Kawalii Gulch.....	2.0	Kuaikalua Gulch	22.0
Ookala, Manager's House.....	4.0	Kapulena Church	23.9
Kealakaha Gulch	6.0	Waipanihua	24.3
Kukaiaiu Gulch	8.0	Stream at Kukuihaele	26.0
Horner's	8.5	Edge Waipio	26.5
Catholic Church, Kainehe.....	9.0	Bottom Waipio	27.0
Notley's, Paauiio	10.5	Waimanu (approximate)	32.5
Kaumoalii Bridge	12.5	Kukuihaele to Waimea (approximate)	10.5
Bottom Kalopa Gulch.....	14.0	Gov't. Road to Hamakua Mill..	1.5
Wm. Horner's, Paauihau.....	15.2	Gov't. Road to Paauihau Mill...	1.0
Paauihau Church	16.3	Gov't. Road to Pacific Sugar	
Holmes' Store, Honokaa.....	18.0	Mill, Kukuihaele	0.7
Honokaia Church	20.5		

ISLAND OF MAUI.

KAHULUI TO

	Miles.	Inter.		Miles.	Inter.
Spreckelsville	4.0	..	Paia P. O.....	7.2	..
Paia P. O.....	7.2	3.2	Makawao Court House.....	11.6	4.4
Hamakuapoko Mill	9.2	2.0	Olinda	18.5	6.9
Haiku P. O.....	11.0	1.8	Haleakala, edge Crater.....	26.6	8.1
Halehaku	17.2	6.2	Haleakala Summit	28.6	2.0
Huelo School	20.2	3.0			
Keanae P. O.....	35.5	15.3	Maalaea	10.3	..
Nahiku Landing	49.9	14.4	End of Mountain Road.....	15.8	5.5
Ulaiho School	49.2	.7	Olowalu	19.9	4.1
Hana P. O.....	55.6	6.4	Lahaina Court House.....	25.5	5.6
Hamoia	58.2	2.6			
Wailua	62.6	4.4	Waiehu	6.4	..
Kipahulu Mill	66.2	3.6	Waihee	7.3	0.9
Mokulau	71.8	5.6	Kahakuloa	16.3	9.0
Nuu	77.0	5.2	Honokohau	23.0	6.7
			Honolua	27.0	4.0
Wailuku	3.8	..	Napili	29.8	2.8
Waikapu	5.9	2.1	Honokawai	33.5	3.7
Maalaea	10.3	4.4	Lahaina Court House.....	39.0	5.5
Kihei	12.6	2.3			
Kalepolepo	13.9	1.3	MAKENA TO		
Ulupalakua	23.6	9.7	Ulupalakua	3.5	..
Kanaio	26.8	3.2	Kamaole	7.3	3.8
Pico's	33.8	7.0	Waiakoa	13.0	5.7
Nuu	40.6	6.8	Makawao P. O.....	20.8	7.8
			Makawao Court House.....	23.0	2.2

ISLAND OF KAUAI.

NAWILIWILI TO

	Miles.	Inter.		Miles.	Inter.
Koloa	11.0	..	Wailua River	7.7	4.4
Lawai	13.8	2.8	Kealia	11.9	4.2
Hanapepe	20.0	6.2	Anahola	15.7	3.8
Waimea	27.1	7.1	Kilauea	23.6	7.9
Waiawa	31.5	4.4	Kalihiwai	26.6	3.0
Nuololo	44.8	13.3	Hanalei	31.8	5.2
Hanamaulu	3.3	..	Wainiha	34.8	3.0
			Nuololo (no road)	47.0	12.2

ISLAND OF MOLOKAI.**KAUNAKAKAI TO**

	Miles.		Miles.
Meyer's, Kalae	5.0	Pukoo	15.0
Kalaupapa	9.0	Halawa	25.0
Kamalo	9.0	Ka Lae o ka Laau.....	19.0
Kaluaaha	13.5		

OAHU RAILWAY DISTANCES.—FROM HONOLULU DEPOT TO

	Miles.		Miles.
Puuloa	6.0	Gilbert	23.0
Aiea	9.0	Nanakuli	27.0
Kalauao	10.0	Waianae	33.0
Waiau	11.0	Makaha	35.0
Pearl City	12.0	Makua	41.0
Waipio	14.0	Kawaihapai	50.0
Waipahu	14.0	Mokuleia	53.0
Lellehua	27.0	Puuiki	55.0
Wahiawa	25.0	Waialua	56.0
Hoeaie	15.0	Haleiwa Hotel	56.0
Honouliuli	16.0	Waimea	62.0
Ewa Mill	18.0	Kahuku	71.0

Revised Areas and Coast Line Distances, Hawaiian Islands.

Prepared by R. D. King, Survey Department.
Courtesy Walter E. Wall, Surveyor, Terr. Hawaii.

Islands	Popltn. in 1910	Miles Square	Acres Area	Coast in Miles Line	Altitude in Feet
Hawaii	55,382	4,015.6	2,570,000	297	13,825
Oahu	81,993	598.0	382,720	177	4,030
Maui	28,623	728.1	466,000	146	10,032
Kauai	23,744	546.9	350,000	106	5,170
Molokai	1,791	260.9	167,000	100	4,958
Lanai	131	139.5	89,305	53	3,400
Niihau	208	72.8	46,575	48	1,300
Kahoolawe	2	44.2	28,260	30	1,427
Midway	35	.....	.....	...	43
	191,909	6,406.0	4,099,860	957	

Seating Capacity of Principal Churches, Halls and Places of Amusement—Honolulu.

Roman Catholic Cathedral, Fort street.....	1,500
Kawaiahao Church (Native), King street.....	1,000
Central Union Church, Beretania street.....	850
St. Andrew's Cathedral (Episcopal), Emma street.....	800
The Bijou (vaudeville).....	1,600
Ye Liberty Theater.....	1,600
Empire Theater (moving pictures).....	930
Y. M. C. A. game hall.....	850
Mission Memorial Auditorium	600

Total Population by Districts and Islands — Comparative, 1900 and 1910.

HAWAII	1900	1910	OAHU	1900	1910
Hilo	19,785	22,545	Honolulu	39,306	52,183
Puna	5,128	6,834	Ewa	9,689	14,627
Kau	3,854	4,078	Waianae	1,008	1,958
North Kona.....	3,819	3,377	Waialua	3,285	6,770
South Kona.....	2,372	3,191	Koolauloa	2,372	3,204
North Kohala....	4,366	5,398	Koolaupoko	2,844	3,251
South Kohala....	600	922			
Hamakua	6,919	9,037		58,504	81,993
	47,843	55,382	Midway		35
MAUI			KAUAI		
Lahaina	4,352	4,787	Waimea	5,714	7,987
Wailuku	7,953	11,742	Niihau	172	208
Hana	5,276	3,241	Koloa	4,564	5,769
Makawao	7,236	8,855	Kawaihau	3,220	2,580
	24,797	28,625	Hanalei	2,630	2,457
Molokai	3,123	1,791	Lihue	4,434	4,951
Lanai		131		20,734	23,952
			Total whole group	154,001	191,909

Population in 1910 by Age, Groups, Sex and Race.

COLOR OR RACE	Under 21 yrs.		21 yrs. & over.		All ages.		
	Male	Female	Male	Female	Male	Female	Total
Hawaiian	5,513	5,404	7,926	7,198	13,439	12,602	26,041
Caucasian-Hawn. ...	2,956	2,813	1,482	1,521	4,438	4,334	8,772
Asiatic-Hawn. ...	1,363	1,391	449	531	1,812	1,922	3,734
Portuguese	6,599	6,508	4,974	4,222	11,573	10,730	22,303
Porto Rican.....	1,315	1,216	1,563	796	2,878	2,012	4,890
Spanish	610	569	468	343	1,078	912	1,990
Other Caucasian..	2,359	2,244	6,896	3,368	9,255	5,612	14,867
Chinese	3,453	2,930	13,695	1,596	17,148	4,526	21,674
Japanese	12,989	11,016	41,794	13,875	54,783	24,891	79,674
Korean	400	306	3,531	296	3,931	602	4,533
Black and Mulatto	191	196	224	84	415	280	695
All Other	1,355	245	994	142	2,349	387	2,736
Total	39,103	34,838	83,996	33,972	123,099	68,810	191,909

Population of Honolulu, various census periods.

1890.....	22,907	1896.....	29,926
1900.....	39,300	1910.....	52,183

Population of Honolulu and Hilo by Race and Sex, 1910.

From Tables of the Bureau of Census.

Race	Honolulu		Hilo	
	Male	Female	Male	Female
Hawaiian	3,969	3,941	369	295
Caucasian-Hawaiian	2,000	2,233	218	200
Asiatic-Hawaiian	653	727	98	122
Portuguese	3,042	3,105	552	586
Porto Rican	210	177	63	46
Spanish	141	117	37	30
Other Caucasian	5,627	3,573	382	295
Chinese	6,948	2,626	335	100
Japanese	7,659	4,434	1,699	1,080
Korean	352	108	26	1
Filipino	68	19	66	10
Negro	179	148	6	.....
All other	66	61	15	14
Total.....	30,914	21,269	3,866	2,879

**Comparative Table of Population, Hawaiian Islands—
Census Periods 1860-1910.**

Islands	1860	1866	1872	1878	1884	1890	1896	1900	1910
Hawaii..	21,481	19,808	16,001	17,034	24,994	26,754	33,285	46,943	55,382
Maui....	16,400	14,035	12,334	12,109	15,970	17,357	17,726	24,797	28,623
Oahu....	21,275	19,799	20,671	29,236	28,068	31,194	40,205	58,504	81,993
Kauai...	6,487	6,299	4,961	5,634	*8,935	11,643	15,228	20,562	23,744
Molokai.	2,864	2,299	2,349	2,581	} 2614	2,652	2,307	2,504	1,791
Lanai...	646	394	348	214		174	105	619	131
Niihau..	647	325	233	177	.....	216	164	172	208
Kahoolawe	.....	.....	.....	.....	.....	.....	.....	.....	2
Midway..	.....	.....	.....	.....	.....	.....	.....	.....	35
Total..	69,800	62,959	56,897	57,985	80,578	89,900	109,020	154,001	191,909
All Foreigners	2,716	4,194	5,366	10,477	36,346	49,368	69,516	116,366	153,362
Hawaiians.....	67,084	58,765	51,531	47,508	44,228	40,622	39,504	37,635	35,547

The nationality of teachers in all schools of the Islands, 1916, was as follows: Hawaiian, 99; Part-Hawaiian, 233; American, 561; English, 49; Germans, 23; Portuguese, 97; Chinese, 55; Japanese, 23; Spanish, 3; other Foreigners, 28. Total, 1,171.

School Statistics, Territory of Hawaii, 1917.

From Report of the Superintendent of Public Instruction.

NUMBER OF SCHOOLS, CLASS, ETC.

Islands	Public Schools June 30, 1917.					Private Schools Dec. 31, 1916.		
	No. of Schools	No. of Teachers	No. of Pupils			No. of Schools	No. of Teachers	No. of Pupils
			Boys	Girls	Total			
Hawaii.....	63	241	4,984	4,429	9,413	8	33	950
Maui, Molokai....	45	140	2,568	2,251	4,819	7	33	1,105
Kauai.....	20	116	2,338	1,980	4,318	2	4	75
Oahu.....	40	358	7,293	6,439	13,732	34	246	4,616
Totals.....	168	855	17,183	15,099	32,282	51	316	6,746

NUMBER OF SCHOOLS, TEACHERS AND PUPILS.

Class	Schools	Teachers			Pupils		
		M.	F.	Total	M.	F.	Total
Public Schools.....	168	139	716	855	17,183	15,099	32,282
Private ".....	51	91	225	316	3,658	3,088	6,746
Totals.....	219	230	941	1,171	20,841	18,187	39,028

AGES OF PUPILS IN PUBLIC AND PRIVATE SCHOOLS.

Schools	Under 6	6-9	10-15	Over 15	Total
Public Schools.....	83	14,242	16,574	1,383	32,282
Private ".....	1,264	1,435	2,717	1,331	6,746
Total.....	1,347	15,677	19,290	2,714	39,028

NATIONALITY OF PUPILS.

Races	Public	Private	Races	Public	Private
Hawaiian.....	3,131	619	Spanish.....	663	64
Part Hawaiian..	3,526	1,412	Chinese.....	3,062	1,014
American.....	878	915	Japanese.....	13,804	1,058
British.....	97	55	Porto Rican...	1,043	68
German.....	187	90	Korean.....	361	154
Portuguese.....	4,744	1,143	Russian.....	110	32
Filipinos.....	534	51	Other Foreigners	142	71
			Total.....	32,282	6,746

**Value Domestic Mdse. Shipments to the United States from
Hawaii for Fiscal Years Ending June 30, 1916 and 1917.**

Compiled from Monthly Summary of Commerce and Finance,
Bureau of Statistics.

Articles.	1916	1917
Animals	\$ 2,247	\$ 786
Art works, paintings, etc.....	1,000	1,315
Bones, hoofs, etc.....	1,939	4,871
Beeswax	17,047	7,497
Breadstuffs	15,833	12,813
Chemicals, drugs, etc.	3,721	3,173
Coffee	343,829	297,972
Cotton and manufactures of .....	.....	1,843
Fibers, unmanufactured—Sisal	68,764	89,543
Fruits and nuts	6,850,655	8,194,284
Hides and skins	259,623	295,216
Honey	53,163	62,462
Household and personal effects.....	6,895	24,527
Meat products, tallow	7,012	18,578
Molasses	327,284	392,110
Musical instruments	36,835	85,167
Paper and manufactures of	2,863	1,518
Pineapple juice	8,750	36,529
Rice	141,964	165,779
Straw and palm leaf, manufactures of	722	550
Sugar, brown	52,516,283	60,137,962
Sugar, refined	1,901,812	2,603,202
Tobacco leaf, unmanufactured	4,420	1,205
Vegetables	14,629	16,080
Wool, raw	31,152	27,395
Wood and manufactures of	56,829	93,992
All other articles	28,459	38,265
Total value shipments Hawaiian products.	\$62,703,730	72,614,625
Returned shipments merchandise	1,685,867	1,751,313
Total to United States	48,700	112,122
Shipments foreign merchandise	\$64,438,297	\$74,478,060

Shipments of Gold and Silver, 1917.

Form United States to Hawaii:

Gold\$2,760,880
Silver 282,920

From Hawaii to United States: Gold..... 309,815

Import Values from United States, Comparative, for Fiscal Years Ending June, 1916 and 1917.

Compiled from Monthly Summary of Commerce and Finance,
Bureau of Statistics.

Articles.	Domestic Merchandise	
	1916	1917
Agricultural Implements	\$ 54,227	\$ 58,583
Animals	201,787	233,363
Automobiles and parts of	2,102,924	2,111,997
Books, Maps, Engravings, etc.....	298,422	524,435
Boots and Shoes	494,526	875,010
Brass, and manufactures of	96,606	178,108
Breadstuffs	2,322,166	3,142,022
Brooms and Brushes	38,400	60,794
Carriages, Cars, etc., and parts of	228,667	278,075
Cement	332,328	538,235
Chemicals, Drugs, Dyes, etc.....	552,717	649,878
Clocks, Watches, and parts of	27,146	45,325
Coal	26,378	125,457
Cocoa and Chocolate	38,848	66,361
Coffee, prepared	4,467	6,964
Copper, and manufactures of	133,962	201,006
Cotton, manufactures of, and clothing	2,367,006	3,416,098
Earthen, Stone and Chinaware	101,421	135,994
Eggs	91,698	120,000
Electrical Machinery and Instruments	527,876	1,004,966
Explosives	519,501	422,973
Fertilizers	1,256,868	2,127,381
Fibers, Textile Grasses, manufactures of	257,285	337,453
Fish	403,159	473,566
Fruits and Nuts	451,568	548,693
Furniture of Metal	71,618	114,134
Glass and Glassware	185,928	298,518
Hay	279,662	376,049
Household and Personal Effects	230,380	132,926
India Rubber, manufactures of	791,491	1,105,487
Instruments, etc., for scientific purposes	17,742	21,095
Iron and Steel, and manufactures of	223,937	347,968
Sheets and Plates, etc.....	209,342	288,245
Builders' Hardware, etc.....	448,373	731,660
Machinery, Machines, parts of	928,107	1,587,687
Nails, Spikes, Pipes, etc.....	3,199,382	4,741,405
Jewelry and manufactures, Gold and Silver...	211,363	218,083
Lamps, Chandeliers, etc.....	36,110	43,007
Lead and manufactures of	61,980	86,779
Leather and manufactures of	281,199	457,279
Marble, Stone, and manufactures of	18,411	61,674
Musical Instruments	89,486	153,270

Import Values from United States for 1916-17—Continued.

Articles.	Domestic Merchandise	
	1916	1917
Naval Stores	\$ 14,213	\$ 11,505
Oil Cloth	20,137	30,171
Oils: Mineral, Crude	1,078,258	1,586,373
Refined, etc.	911,649	1,654,499
Vegetable	75,452	141,753
Paints, Pigments and Colors	367,607	488,198
Paper and manufactures of	472,198	791,671
Perfumery, etc.	49,738	74,735
Phonographs, etc.	61,628	59,883
Photographic Goods	138,076	204,941
Provisions, etc., Beef Products	166,918	202,025
Hog and other Meat Products	782,840	963,792
Dairy Products	629,825	878,816
Rice	7,307	267,423
Roofing Felt, etc.	29,643	42,096
Salt	21,724	28,249
Silk and manufactures of	211,177	263,914
Soap: Toilet and other	286,069	321,454
Spirits, etc.: Malt Liquors	268,995	249,676
Spirits, distilled	144,105	209,037
Wines	259,168	291,653
Starch	10,882	22,367
Straw and Palm Leaf, manufactures of	94,722	125,487
Sugar, Molasses and Syrup	139,770	112,192
Confectionery	129,455	231,511
Tin and manufactures of	66,214	126,336
Tobacco, manufactures of	808,153	978,773
Toys	60,808	76,523
Vegetables	471,404	710,543
Wood and Mfrs.:		
Lumber, Shingles, etc.	754,744	1,222,969
Shooks, box	248,232	415,918
Doors, Sash, Blinds	102,879	148,914
Furniture	240,659	359,093
Trimings, Molding and other manfrs.	364,127	500,640
Wool and manufactures of	317,584	445,679
All other articles	757,334	990,446
Total domestic merchandise	\$30,825,187	\$43,967,256
Total value foreign merchandise from U.S.	302,390	307,219

Quantity and Value of Principal Articles of Domestic Produce Shipped to U. S. for the Fiscal Year Ending June 30, 1917.

Compiled from Monthly Summary of Commerce and Finance,
Bureau of Statistics.

Articles		Quantity	Value
Sugar, raw	pounds...	1,127,825,256	\$60,137,962
Sugar, refined	"	34,779,800	2,603.202
Coffee, raw	"	1,987,035	297,972
Rice	"	3,527,846	165,779
Fibers, sisal	tons.....	348	89,543
Fruits: Fresh Bananas	bunches..	257,037	178,675
Fresh Pineapples .....	.....	.....	23,546
Canned Pineapples .....	.....	.....	7,970,522
All other .....	.....	.....	5,393
Pineapple Juice .....	.....	.....	36,520
Beeswax	pounds...	21,902	7,497
Honey .....	.....	.....	62,462
Molasses	gallons...	10,979,383	392,110
Hides and Skins	pounds...	1,481,717	295,216
Wool, raw	"	381,441	93,992
Timber, lumber & unmnfrd wood	M ft.....	43	3,037

Hawaiian Imports and Exports, Fiscal Year 1917.

Courtesy of Collector of Customs.

Countries:	Imports to June 30.	Exports to March 31.
Australia	\$ 164,571	\$ 8,684
Br. Oceania	70,166	76,194
Br. India	1,130,449	453
Canada	28,405	159,707
Chile	899,358	40
England	60,583	7,744
France	7,902	.....
Germany	2,507	.....
Hongkong	428,126	5,348
Japan	3,405,571	203,752
Scotland	26,079	.....
Other	258,234	173,942
United States*	39,876,390	74,480,119
Totals.....	\$46,358,341	\$75,115,983

* The tables from the Summary of Commerce and Finance, on pages 21-23; differ in the amounts here shown.

Number and Tonnage of Vessels Entering and Clearing at all Ports, District of Hawaii, 1917.

[Not including Transports and bunker coal vessels.]

Ports	Entered		Cleared	
	Vessels	Tons	Vessels	Tons
Honolulu —Coastwise	260	726,607	277	810,842
Foreign	149	538,783	125	476,129
Hilo —Coastwise	48	77,557	36	64,370
Foreign	0	.....	1	1,105
Kahului —Coastwise	15	17,948	17	21,422
Foreign	1	1,778	0	.....
Koloa —Coastwise	7	4,708	14	9,482
Foreign	6	4,953	0	.....
Mahukona —Coastwise	3	2,177	9	7,471
Foreign	0	.....	0	.....
Total	489	1,374,511	479	1,390,821

Summary of Insurance Business, Territory of Hawaii, for 1916

From Report of Insurance Commissioner.

Class	Amount Written	Amount Premiums	Losses and Claims paid
Fire	\$ 39,784,264.66	\$ 692,232.98	\$ 53,217.44
Marine	99,875,114.35	302,488.43	18,235.73
Life	4,088,336.00	*931,711.07	166,129.69
Accident and Health ....	.....	45,701.67	5,329.98
Automobile .....	.....	40,301.09	4,928.18
Burglary .....	.....	676.85	.....
Employers' Liability ....	.....	7,460.13	2,565.00
Surety and Fidelity ....	.....	44,073.30	3,779.48
Plate Glass .....	.....	2,684.15	316.84
Workmen's Compensation.	.....	101,485.89	18,752.87
Other .....	.....	4,012.49	979.50
Total	\$143,747,715.01	\$ 2,172,828.05	\$ 274,232.71

* Of this amount \$749,652.47 is renewals.

Hawaiian Sugar Export Statistics from 1901.

For earlier years see Annuals 1896-1914.

Year	Sugar		Molasses		Ttl. export Value
	Pounds	Value	Gallons	Value	
1901	690,882,132	\$27,094,155	93,820	\$ 4,615	\$27,098,770
1902	720,553,357	23,920,113	48,036	2,187	23,922,300
1903	774,825,420	25,310,684	10	1	25,310,685
1904	736,491,992	24,359,385	11,187	712	24,360,097
1905	832,721,637	35,112,148	26,777	1,282	35,113,430
1906	746,602,637	24,495,427	3,180	177	24,495,604
1907	822,014,811	27,692,997	6,917	355	27,693,352
1908	1,077,570,637	39,816,062	23	20	39,816,082
1909	1,022,863,927	37,632,742	728	79	37,632,821
1910	1,111,594,466	42,625,062	100	7	42,625,069
1911	1,011,215,858	36,704,656	1,801,796	89,708	36,794,364
1912	1,205,465,510	49,961,509	1,734,318	77,241	50,038,750
1913	1,085,362,344	36,607,820	3,736,877	140,610	36,748,430
1914	1,114,750,702	33,187,920	4,110,404	149,597	33,337,517
1915	1,280,917,435	52,953,009	5,202,913	195,485	53,148,594
1916	1,137,164,228	54,418,300	8,399,014	327,284	54,745,584
1917	1,162,805,056	62,741,164	10,979,383	392,110	63,133,274

Passengers to and from Hawaii, Fiscal Year 1917.

Courtesy Department of Secretary.

Nationality	Arrivals			Departures		
	Cabin	Steer-age	Total	Cabin	Steer-age	Total
Chinese	101	471	572	47	419	466
Japanese	290	4,029	4,319	171	3,448	3,616
Filipinos	2	2,932	2,934	26	1,138	1,156
Koreans	6	38	44	2	23	25
Portuguese . . . . .	.....	159	159	.....	367	367
Spaniards . . . . .	.....	15	15	.....	1,003	1,003
Russians . . . . .	.....	17	17	.....	61	61
Hindus	1	.....	1	1	2	3
Porto Ricans . . . . .	.....	.....	.....	.....	41	41
All Others-European	9,888	682	10,570	9,699	708	10,407
Total	10,288	8,343	18,631	9,946	7,202	17,148

SUGAR EXPORT VALUES.

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Hawaii's Annual Trade Balance, etc., from 1901.

Year	Imports	Exports	Excess export Values	Custom house Receipts
1901	\$24,964,693	\$29,342,697	\$ 4,378,003	\$ 1,264,862
1902	22,036,583	24,793,735	2,757,152	1,327,518
1903	13,982,485	26,275,438	12,292,953	1,193,677
1904	15,784,691	25,204,875	9,420,184	1,229,338
1905	14,718,483	36,174,526	21,456,043	1,043,340
1906	15,639,874	26,994,824	11,354,950	1,218,764
1907	18,662,434	29,303,695	10,641,261	1,458,843
1908	19,757,270	42,241,921	22,484,651	1,550,157
1909	22,241,041	42,281,777	20,040,736	1,396,379
1910	26,152,435	47,029,631	20,877,196	1,450,324
1911	28,065,626	42,666,197	14,600,571	1,654,761
1912	28,694,322	55,449,438	26,755,116	1,643,197
1913	37,519,620	43,471,830	5,952,210	1,869,513
1914	31,550,257	41,594,072	6,043,815	1,184,416
1915	26,416,031	62,464,759	36,048,728	1,019,534
1916	34,098,210	64,670,852	30,572,642	1,161,051
1917	46,358,341	75,115,983	28,757,642	1,169,085

Receipts, Expenditures, and Public Debt of Hawaii, from 1901.

(From Official Reports.)

Years	Revenue	Expenditures	Cash Balance in Treasury	Public Debt
1901	2,140,297.36	2,576,685.53	75,994.97	939,970.31
1902	2,473,172.81	2,382,968.90	287,131.30	1,093,970.31
1903	2,387,715.88	2,603,194.20	73,181.63	2,185,000.00
1904	2,415,356.33	2,844,054.81	56,613.29	3,317,000.00
1905	2,354,783.37	2,240,731.55	59,408.49	3,861,000.00
1906	3,320,998.90	2,512,675.89	335,331.37	3,818,000.00
1907	2,716,624.00	2,665,845.74	348,216.51	3,718,000.00
1908	2,551,522.21	2,508,001.51	391,737.19	3,979,000.00
1909	3,051,526.81	3,160,875.81	453,106.76	3,959,000.00
1910	3,641,245.35	3,435,082.87	845,218.51	4,079,000.00
1911	3,482,560.84	3,730,765.16	822,282.07	4,004,000.00
1912	3,963,588.55	4,002,483.00	690,550.70	5,454,000.00
1913	4,300,780.71	4,261,468.66	716,729.60	6,844,000.00
1914	3,925,187.95	4,263,863.64	366,001.24	6,844,000.00
1915	4,539,241.04	4,446,415.65	464,040.43	7,873,500.00
1916	5,626,905.33	5,553,700.66	539,388.71	8,024,000.00
1917	5,944,352.95	5,638,429.13	889,508.42	7,874,000.00

Hawaii's Bonded Debt, June 30, 1917.

Refund Bonds, 1905, 4%	\$ 450,000
Public Improvement 3½% Bonds	1,244,000
Public Improvement 4% Bonds	6,180,000
Total Bonds Outstanding	\$7,874,000

**Assessed Values Real and Personal Property for 1917,
by races of tax-payers.**

Tables Courtesy of Treasury Department.

Taxpayers	Real Estate		Personal Property	
	No. Tax payers	Assessed Value	No. Tax payers	Assessed Value
Corporations, etc. . . .	701	\$ 80,006,477	771	\$ 90,332,484
Anglo-Saxons	3,243	25,105,893	2,050	3,622,442
Hawaiians	6,189	15,373,985	2,213	1,747,938
Chinese	1,051	2,616,541	2,005	2,389,641
Japanese	1,025	1,364,140	3,851	3,792,076
Portuguese & Spanish	2,471	4,872,965	1,577	696,337
Total	14,680	\$129,340,001	12,467	\$102,580,918

Hawaiian Corporations, 1917.

Class.	Total No.	Number and Capital Incorporated before and after Aug. 12, 1898				Total
		No.	Before	No.	After	
Agriculture ..	154	47	\$47,865,750	107	\$35,732,950	\$ 85,598,700
Mercantile ..	401	40	19,607,625	361	43,223,943	62,831,568
Railroad	9	5	7,370,000	4	7,129,960	14,499,960
Street Car ...	2	...	...	2	1,950,000	1,950,000
Steamship ...	1	1	3,000,000	...	...	3,000,000
Bank	7	1	600,000	6	1,650,000	2,250,000
Savgs. & Loan	13	...	...	13	746,000	746,000
Trust	7	1	200,000	6	800,000	1,000,000
Insurance ...	2	...	...	2	200,000	200,000
Eleemosynary	157	34	...	123	...	...
Total	753	129	\$78,643,375	624	\$91,432,853	\$170,076,228

Growth of Bank Deposits, Territory of Hawaii.

Fiscal Year—	No. Banks	Commercial Deposits	Savings Deposits	Total
1907	11	\$ 4,966,042.04	\$ 2,777,554.40	\$ 7,743,596.44
1908	11	5,074,836.16	2,588,722.87	7,663,559.03
1909	11	6,334,991.42	3,322,827.79	9,657,819.21
1910	11	9,033,385.97	4,290,919.57	13,324,305.54
1911	16	10,289,707.89	5,020,555.62	15,310,263.51
1912	17	12,667,162.39	5,521,973.11	18,189,135.50
1913	17	11,641,901.30	5,384,395.72	17,026,297.02
1914	18	10,371,874.60	6,275,790.63	16,647,665.23
1915	19	12,378,041.53	7,736,569.32	20,114,610.85
1916	19	17,317,339.40	9,061,910.28	26,379,249.68
1917	22	22,486,524.31	10,205,496.70	32,692,021.01

Taxes by Division and Counties for the Fiscal Year Ended June 30, 1917.

Courtesy of Auditing Department.

DIVISION OF TAXES	OAHU.	MAUI.	HAWAII.	KAUAI.	TOTALS.
Special Territorial	\$ 37,995.75	\$	\$	\$	\$ 37,995.75
Real Estate	739,908.90	305,167.43	358,837.32	143,958.85	1,547,872.50
Personal Property	528,609.85	215,027.59	281,294.18	161,624.65	1,186,556.27
Penalties	1,573.85	123.30	565.80	17.25	2,280.20
Court Costs and Interest	4,287.06	761.58	6,223.64	1,152.95	12,425.23
Bicycles	3,135.80	778.20	748.20	462.00	5,124.20
Automobiles	68,421.30	14,563.35	19,523.35	11,049.60	113,557.60
Carriages, Carts, Etc.	12,075.00	3,715.00	5,805.00	4,120.00	25,715.00
Brakes and Sulkies	476.00	136.00	532.00	338.00	1,482.00
Road	42,118.29	19,447.04	34,091.63	15,221.95	110,878.91
Poll	20,712.21	9,619.73	16,962.99	7,574.65	54,869.58
Dog and Dog Tags	2,294.34	1,060.00	2,301.35	1,038.50	6,694.19
School	41,388.59	19,241.89	33,904.18	15,149.50	109,684.16
Income	665,596.73	80,547.63	32,811.70	20,844.80	799,800.86
Special Income	309,533.87	37,752.34	12,077.59	8,556.55	367,920.35
Total	\$2,478,127.54	\$707,941.08	\$805,678.93	\$391,109.25	\$4,382,856.80

TABLE OF RAINFALL, Principal Stations.

Compiled from Weather Bureau Reports.

Stations	Observer	1916					
		July	Aug.	Sept.	Oct.	Nov.	Dec.
HAWAII							
Waiakea.....	D. Forbes	10.17	12.86	10.39	10.58	16.55	15.37
Hilo (Town).....	L. C. Lyman ..	8.78	12.54	13.38	11.37	15.42	23.06
Ponahawai.....	I. E. Gamalielson	13.20	17.12	10.68	15.76	21.19	45.33
Pepeekeo.....	Pepeekeo S. Co.	7.57	12.70	12.62	12.08	12.94	28.07
Hakalau.....	W. F. Klatt	9.29	18.75	11.89	13.22	12.23	34.05
Laupahoehoe.....	E. W. Barnard..	10.71	13.45	7.34	4.97	11.54	27.40
Ookala.....	Kaiwiki S. Co..	10.51	9.44	4.16	2.95	9.33	26.19
Kukaiau.....	F. F. Bechert ..	5.92	4.17	2.98	2.06	5.98	19.50
Pauhau.....	G. B. Wait.....	2.18	3.19	1.85	1.35	3.51	11.56
Honokaa.....	Pac. Sug. Mill..	2.58	4.15	3.36	2.08	3.89	14.37
Waimea.....	F. Pinho	2.24	2.15	1.45	2.17	2.65	8.16
Kohala.....	Dr. B. D. Bond..	5.16	7.39	4.67	2.05	1.75	9.08
Holualoa.....	Kona Dev. Co...	.....	.....	5.70	5.20	1.89	4.30
Kealahou.....	Robt. Wallace..	6.61	6.21	3.55	7.66	2.21	3.74
Naalehu.....	Hut'n S. P. Co.	0.68	1.59	1.45	4.27	1.70	15.79
Pahala.....	Haw. Agr. Co..	0.02	0.82	1.55	5.85	1.51	18.60
Volcano Obs.....	T. A. Jaggar Jr.	6.76	5.66	5.92	9.33	8.11	25.32
Olau (17 miles)...	Olau Sugar Co..	15.47	15.39	13.10	15.89	20.11	46.71
Kapoho.....	H. J. Lyman ...	5.08	7.79	7.95	6.98	9.85	19.21
MAUI							
Haleakala Ranch.	L. von Tempsky	1.11	1.52	1.01	0.30	1.62	23.25
Puomalei.....	A. McKibbin ...	4.02	4.33	5.29	2.52	5.21	18.94
Makawao.....	F. W. Hardy ...	1.98	1.54	2.11	0.65	5.55	17.70
Kula.....	A. von Tempsky	2.32	1.17	2.14	2.70	0.25	1.28
Haiku.....	Mrs. L. B. Atwater	4.94	4.11	4.51	2.96	7.11	11.52
Keanae Valley...	G. W. Weight..	17.87	24.87	20.13	16.89	26.24	45.79
Nahiku.....	Jno. S. Goodell.	12.78	16.40	15.82	13.22	17.71	23.24
Wailuku.....	Bro. Frank	0.84	0.09	0.13	0.23	0.97	6.98
Hana.....	Kaeleku S. Co...	5.15	.....	.....	6.01	5.89	10.97
OAHU							
Honolulu.....	U. S. Weath. Bu.	1.72	1.09	0.60	1.21	1.31	5.54
Kinau Street.....	W. R. Castle ...	1.38	1.09	0.71	1.06	1.29	6.26
Manoa.....	C. S. Desky	7.02	10.19	6.76	6.14	9.52	15.82
Electric Lt. St....	A. Walker	7.45	9.36	6.62	10.09	12.55	19.28
Luakaha.....	L. A. Moore	10.13	13.43	9.59	12.72	16.15	26.04
Waimanalo.....	Ed. Todd	1.57	1.49	0.87	1.32	1.69	5.44
Maunawili.....	Jno. Herd	4.70	5.02	3.91	3.57	5.23	10.08
Waialua Mill....	A. T. Correa ...	0.80	1.05	0.75	1.65	1.99	8.21
Kahuku.....	H. T. Christfrsn.	2.46	1.96	1.82	2.67	4.10	6.08
Ewa Plantation...	I. A. Hattie	0.48	1.60	0.55	1.57	0.55	3.49
Schofield Brks...	Surgeon U.S.A..	1.75	1.69	3.90	5.30	1.97	6.41
Waiawa.....	A. Lister	3.04	2.98	1.80	3.21	6.11	15.11
Waimalu.....	Hon. Plan. Co..	1.29	1.13	1.72	1.89	2.90	7.37
KAUAI							
Grove Farm.....	G. N. Wilcox ...	3.35	2.00	2.57	3.86	7.64	12.96
Kealia.....	Makee Sgr. Co..	3.15	1.76	1.85	1.60	4.16	9.15
Kilauea.....	Kilauea Sug. Co.	4.38	3.45	2.64	3.30	7.43	9.61
Eleele.....	McBryde S. Co.	1.77	1.04	2.06	2.11	4.29	6.88
Kukuiula.....	F. L. Zoller	1.80	1.60	0.30	3.20	6.10	7.90
Waiawa.....	G. Anderson ...	.00	.00	.29	2.85	1.24	3.07

Throughout the Hawaiian Islands, 1916-1917.

By A. M. Hamrick, Section Director. Continued from last Annual.

Locality	Ft. Elev.	1917						
		Jan.	Feb.	Mar.	Apr.	May	June	Year
HAWAII								
Waiakea	50	16.57	3.15	22.27	13.98	6.85	9.07	167.81
Hilo	100	8.45	3.94	19.15	12.20	8.06	4.58	140.93
Ponahawai	500	15.87	3.22	24.70	16.56	7.97	8.64	200.24
Pepeekeo	100	14.04	4.01	20.46	12.67	8.49	7.83	153.48
Hakalau	200	23.72	3.65	18.55	10.51	6.19	8.33	170.38
Laupahoehoe	100	11.99	7.72	11.60	5.73	5.37	4.77	122.65
Ookala	400	3.89	6.40	7.09	4.08	4.04	4.84	92.93
Kukaiau	250	4.94	4.76	5.26	2.72	1.73	2.74	62.76
Paaupau Mill	300	2.99	3.28	2.10	1.12	0.49	1.58	35.20
Honokaa	470	3.61	3.92	1.83	1.36	1.08	1.96	44.19
Waimea	2720	2.34	2.78	2.38	3.02	2.50	2.55	34.39
Kohala Mission	521	5.13	3.57	4.68	1.63	2.88	2.17	50.16
Holualoa	1450	4.00	2.35	9.16	6.19	11.98	3.10	53.87
Kealakekua	1450	2.61	2.49	3.61	10.50	12.50	5.46	67.15
Naalehu	650	11.99	3.21	13.76	3.80	1.68	1.03	60.95
Pahala	850	10.57	7.14	18.96	7.33	8.96	0.58	81.89
Kilauea Crater	3984	12.90	5.04	25.79	11.27	14.16	2.98	123.24
Olaa, Puna	1530	15.83	2.89	29.50	18.73	11.32	9.84	214.78
Kapoho	110	12.15	3.85	26.65	7.24	15.50	5.47	127.72
MAUI								
Haleakala Ranch	2000	4.32	4.01	2.52	3.34	3.32	00	46.32
Puunomalei	1400	4.50	5.19	2.80	7.28	7.01	2.79	69.88
Makawao	1700	3.34	3.65	4.88	6.90	2.81	1.05	52.16
Erehwon	4200	3.12	4.07	2.12	3.87	8.34	6.02	37.40
Haiku	700	3.82	3.54	3.45	7.35	4.93	2.77	61.11
Keanae	1000	12.74	8.66	14.59	18.15	14.19	11.42	231.54
Nahiku	645	.....	.....	.....	.....	.....	.....	.....
Wailuku	250	2.36	3.85	3.38	2.76	0.77	0.22	22.58
Hana	145	4.55	5.00	3.65	8.87	3.88	1.49	55.46
OAHU								
U. S. Weather Bu ...	108	8.37	2.05	15.87	1.61	1.65	0.56	41.04
Kinau Street	50	8.70	2.63	15.03	1.68	2.10	0.49	42.42
Woodlawn	300	10.71	3.00	17.22	9.00	8.98	3.59	107.95
Nuuanu Elec. Stn ...	405	12.55	3.21	23.57	10.93	11.70	4.98	132.29
Nuuanu Water Wks.	881	16.67	4.14	31.40	15.93	18.91	8.60	183.71
Waimanalo	25	11.21	4.32	15.40	6.15	3.05	0.69	53.20
Maunawili	250	10.78	3.72	18.79	9.69	5.34	2.66	83.49
Waialua	30	8.64	3.59	7.88	4.92	5.50	1.51	46.49
Kahuku	25	11.45	2.67	15.30	2.39	1.67	4.15	56.72
Ewa	50	9.58	2.15	10.93	1.24	1.79	0.16	34.09
Leilehua	990	8.55	4.20	11.24	3.19	3.24	1.17	52.61
Wahiawa	675	11.01	2.19	13.47	3.41	6.10	2.28	70.71
Ewa	200	10.26	2.54	16.16	2.27	3.87	1.98	53.38
KAUAI								
Lihue	200	6.68	4.98	14.14	3.69	6.49	2.31	70.67
Kealia	15	6.31	2.63	15.51	2.21	4.11	2.21	54.65
Kilauea	342	15.58	3.27	28.54	45.16	8.95	5.85	98.16
Eleele	150	5.95	2.73	9.33	5.71	1.40	0.38	43.65
Koloa	100	4.15	3.65	7.05	5.05	2.20	2.20	45.20
Waimea	30	5.87	3.20	9.15	2.60	1.40	00	29.67

Summary of Meteorological Observations, Honolulu, 1916-17.

Compiled from U. S. Weather Bureau Records, by A. M. Hamrick, Meteorologist.

(Continued from preceding Annuals.)

MONTH	BAROMETER		RAIN- FALL	REL. HUM.		TEM- PERATURE		MEAN TEMPERATURE				Cloud Am't	Wind Velocity
	8 a.m.	8 p.m.		8 a.m.	8 p.m.	Max.	Min.	6 a.m.	2 p.m.	9 p.m.	Mean of Max. and Min.		
1916	30.06	30.05	1.72	67	69	83	67	73.5	80.5	75.2	75	3.9	8.2
	30.07	30.06	1.09	66	69	84	69	73.2	80.3	75.0	76	4.3	8.2
	30.03	30.02	0.60	64	67	84	70	73.7	80.6	75.9	77	4.7	7.6
	30.00	30.00	1.21	67	70	84	68	73.4	79.2	74.9	76	5.1	7.3
	30.07	30.06	1.31	67	70	83	64	72.2	77.9	73.9	74	5.7	8.7
1917	30.01	30.00	5.54	71	72	80	64	70.3	75.0	71.0	72	6.1	9.2
	29.99	29.97	8.37	73	75	79	59	67.6	73.7	69.4	69	4.8	8.1
	30.05	30.04	2.05	72	74	78	59	67.2	73.7	69.1	68	4.9	7.9
	30.05	30.04	15.87	73	73	81	62	69.0	74.7	70.7	72	6.9	7.7
	30.09	30.08	1.61	66	71	81	65	69.8	77.1	71.7	73	5.2	7.6
Year	30.08	30.07	1.65	66	71	84	66	17.7	78.9	73.3	75	4.4	6.4
	30.09	30.08	0.56	64	66	84	68	73.3	80.0	75.1	76	4.3	7.5
													7.9
													5.0
													73.6
													72.9
													77.6
													71.1
													65.1
													82.1
													70.6
													68.0
													41.58
													30.04
													30.05

COMMERCIAL REVIEW, 1917.

THAT Honolulu is in the enjoyment of a season of prosperity is well borne out by a careful study of the custom tables of export and import for the past year, as shown on pages 21 to 23 inclusive, especially if they are compared with the figures of years preceding, and an analysis of the list of goods and merchandise imported and island products exported, will present lessons both encouraging and of timely caution.

All nature seems to have joined its forces to accord Hawaii the most prosperous year in its history, notwithstanding the reduced list of domestic exports. The aggregate total value of merchandise passing in and out of the territory has grown steadily for many years past till in 1917 it reached the sum of \$128,592,139, a gain over the preceding year of \$24,324,699.

In considering, first, the figures of export, it is a well known fact that to the bountiful yields of our sugar-cane and pineapple acreages, the high market rates realized throughout the year have enabled us to reach a total value of \$75,751,847 for the fiscal period ending with June, of which amount but \$1,836,435 represented returned mainland and foreign merchandise, leaving \$73,915,412 as the year's output of domestic produce. The above total for 1917 shows an improvement over the preceding year, which was our largest, of \$10,845,743.

The table of imports also naturally show increased figures owing to the steadily advancing prices throughout the year, due to the war and labor conditions. The total import value for 1917 of merchandise shipments from all points, is \$52,840,292, by far the largest in our commercial history; exceeding the previous year's imports, the banner year, by \$13,478,956, leaving a net gain in our commercial transactions for the period of \$22,911,555, a healthy showing, it will be admitted, yet considerably behind the excess of exports over imports of 1915, on its volume of business of \$91,139,425. See Table of Hawaii's Annual Trade Balance, on page 27.

The gain mentioned in the value of exports this last year is nearly covered by the increase in our two principal products, sugar and pineapples. Other lines showing improved figures embrace hides, honey, household effects, musical instruments, rice, sisal, vegetables and wool, most of which, however, are offset by the reduction in export values of animals, bananas, beeswax, coffee, lumber and tobacco. It is a matter of regret to note a set-back to any line in our list of domestic products, though these may be more apparent than real, a larger local consumption in some cases, and belated shipments of the season's product in others, accounting for the deficit, or affecting a moderation on like lines of imports. It is gratifying to see the substantial gain in the exports of sisal, wool, musical instruments, hides and skins, and to learn that the tobacco outlook is encouraging, not only to those concerned, but all advocates of diversified industries.

Of the various lines of imports, shown comparatively for 1916 and 1917, on pages 22 and 23, it is of interest to find that with the exception of household and personal effects, naval stores, phonographs, etc., refined sugar, and rubber belting and hose, the whole list shows increased values, a number of which are quite substantial.

An analysis of the list reveals a few points worthy of notice, first of which may be mentioned the fact that of the \$13,478,956 gain over the imports of the previous year, the increase is upon the lines of every-day requirement rather than of luxury. For instance: one turns instinctively to automobiles as an index, but this is found to have changed but little over that of 1916, whereas breadstuffs show a gain of \$1,079,972, boots and shoes \$380,484, cotton wearing apparel \$1,049,085, oils \$1,206,967, meat and dairy products \$465,050, fruits and nuts \$97,125.

In the several lines affecting construction work a number show large increased values, viz.: brass \$81,502, cement \$205,907, copper \$67,047, electrical machinery \$487,090, glass and glassware \$112,590, iron and steel, etc., and machinery \$2,-

987,824, and lumber and building materials \$936,893, all of which would have shown heavier importations but for delays in the filling and delivery of orders. Among some of the advancing lines are: confectionery \$102,056, eggs \$28,302, (the year's supply being 358,206 dozen, valued at \$120,000), auto tires \$211,993, bicycles, motorcycles, etc., \$53,032, and fish (to a fish country, encouraged by exorbitant prices), \$70,407; these, like the above, being gains on like products for 1916.

Some modification prevails in a few items to the benefit of local products, more particularly coffee, certain lines of feed, and refined sugar, while a number of lines show reduced quantity though of increased value which may be understood as indicating cautious buying on a rising market.

Comment has been made from time to time on the shortsightedness; the lack of sound business principles observed by the importations of products that enter into competition with our own, to crowd them out of the market and discourage local enterprise, and endeavored thereby to instill a spirit of loyalty toward home industries for their encouragement. The wisdom of such a course was brought home to us forcibly this past year when advice from the highest official sources of the land went forth, 'to plant and produce all possible for ourselves instead of being a drain upon others'. In the spirit of preparedness, lest we should have too rude an awakening, some response has been made to this appeal, but it calls for all the support that is in our power to favor rather than discourage the movement. In a coffee country of such quality as is Hawaii's rightful boast, it is strange, to say the least, that this product continues from year to year among the imports. And the same applies to refined sugar now that several island mills are producing the refined product. The reduction of these in last year's imports, as already mentioned, is an encouragement.

Other items might be named but these suffice to illustrate the principle involved.

It would gladden eyes and hearts to see Kona oranges once more in the market, to displace the increasing importations of the California product for lack of them, which, for 1917, reached 53,964 boxes, valued at \$141,751. Encouraged local enterprise increases taxable property; extends our export list and values, and modifies those of importation.

THE HAWAIIAN PINEAPPLE INDUSTRY.*

BY J. P. MORGAN,

I. HISTORY OF THE INDUSTRY.

THE Hawaiian pineapple industry is distinctly a product of the 20th century. Seventeen years ago a group of Easterners sojourning on the Island of Oahu were struck with the adaptability of the soil, climate and labor conditions to the commercial growing of pineapples, which up to that time had received almost no attention. Captain John Kidwell, the pioneer of the pineapple industry in Hawaii, had already indicated the possibilities, and had, as manager of the Hawaiian Fruit and Packing Co., packed 13,798 cases between 1894 and 1899. The Pearl City Fruit Co., Ltd., was also in operation in 1900. In 1901 the Hawaiian Pineapple Co., Ltd., with a capital of \$20,000, was organized in Honolulu to produce and ship fresh and canned pineapples to the Pacific Coast. The pack of the first season amounted to 1,893 cases representing twelve months of very intense application to many problems which were new to the country and to the entrepreneurs. At the present day 1,900 cases can be packed by this same corporation in one hour and a half, so that it may be readily seen how great has been the development of the industry. The growth from 1903 has been rapid, as is evident

* A very complete paper on this subject, and same title, by Dr. A. Marques, may be found in the ANNUAL for 1909, pp. 58-82.

from the following table. The figures for the first three years are not absolutely accurate. Pack for the years, ending Dec. 31:

Year.	Cases.	Year.	Cases.	Year.	Cases.
1903	6,000	1908	391,082	1913	1,667,122
1904	20,000	1909	461,940	1914	2,268,781
1905	45,041	1910	544,968	1915	2,669,616
1906	74,245	1911	725,742	1916	2,609,483
1907	178,188	1912	1,313,363	1917 (Est.) .	2,600,000

As the demand for canned pineapple, stimulated by a carefully planned advertising campaign, spread from the Pacific Coast to the Eastern States, it became necessary to remove the cannery of the Hawaiian Pineapple Co., Ltd., which, until 1906, had been located in the midst of the pineapple fields at Wahiawa, 20 miles from Honolulu, to a position where the labor problem and the shipping facilities lent themselves more favorably to the business. In the meanwhile the success of the undertaking had attracted a good deal of competition, insofar that six other corporations were organized on the Island of Oahu and the Island of Maui. There are five main islands in the Hawaiian group, but pineapple growing has been successful on three of these only, viz.: Oahu with about 81%, Maui with about 14%, and Kauai with about 5% of the business. The greatly increased output now began to make itself felt on the mainland and the packers encountered their first serious economic problem of over-production. The industry has been strikingly free on the whole from difficulties of this nature, for it has never felt the pinch of tariff regulation or foreign competition. The problem of over-production, which was in a large measure really a question of under-consumption on the part of the public, was solved most efficaciously by a vigorous advertising campaign carried on through the large national weeklies and by grocery-store window display. At the present moment we are informed by the Association of Hawaiian Pineapple Packers that practically all the pack of the 1917 season has been disposed of at prices considerably advanced over those of last year's opening, so that it is obvious

that the pineapple has definitely taken its place along with canned peaches, cherries and apricots as a standard American fruit.

II. THE GROWING OF THE FRUIT.

The pineapple thrives best at an altitude of from 600 to 1,200 feet above the sea and thus utilizes land which is too high for Hawaiian sugar. It requires no irrigation because of the fact that it absorbs its required moisture from the air, or from frequent light rains. The planting of pineapples involves the usual operations of plowing, fertilizing, and cultivating, labor which is done almost entirely by Japanese, Chinese, and Portuguese laborers who earn from \$1.20 to \$2.50 per day.

The pineapple fruits 18 months after the planting and continues to bear every year, both fruit and "slips" from which new plantings are made. The variety cultivated in the Hawaiian Islands is exclusively Smooth Cayenne which of all the varieties is the most apt to be uniform in size, color, and texture of the sarcocarp. The plants are placed out in broad fields running sometimes four or five miles up into the foothills and are then kept free from weeds until about the third crop of fruit has been taken off, at which time the plants are rooted out and the land is planted in legumes as a revivifying rotation. Occasionally the plant and the fruit are disturbed by dry rot and mealy bugs, but on the whole the fruit is a very hardy one and is well protected by its thick skin from injury either by birds or in shipment.

Beginning about the first of July and running until the middle of September, the pineapples ripen and are ready either for the market or the cannery. Gangs of 20 or 30 men armed with short butcher knives and carrying-sacks, now go up and down the long lines of plants, gathering the fruit and putting it into boxes adapted to safe transportation. These boxes are then collected by auto trucks or broad mule-wagons, carried to the railroad loading-station and immediately sent to the packing house where they are frequently put into cans within 12

hours of the time they glistened in the field. In the case of the Hawaiian Pineapple Co., where the 6,000 acres of plantation are from 20 to 40 miles from the cannery, real problems of transportation arise on account of the necessity of moving the fruit at exactly the right time. Practically no loss on account of over-ripening is ever experienced, though a single carload of fruit, if allowed to stand a few hours too long on the side track, would involve the loss of from \$200 to \$500. The only carrying agent from the plantations to the canneries is the Oahu Railway & Land Co., a narrow-gauge railway operating chiefly from the sugar plantations but nevertheless deriving an income of several hundred thousand dollars a year from the pineapple industry.

The laborers on a pineapple plantation are almost altogether Orientals with overseers or "lunas" who are trained white men with experience in agriculture. The laborers live in little camps in gulches beside streams or wells to the number of perhaps 500 men and women. Their working day is from six in the morning to four or five in the afternoon, depending on the amount of work to be done. Labor problems as such have never troubled to any great extent either the sugar or the pineapple industries of the islands, although there is a considerable amount of shifting of individuals which sometimes entails a little worry especially at the cropping periods. It is fortunate that the pineapple season of picking is over before the grinding season for sugar commences and in that way both industries make use of the same labor to some extent.

A typical laborer earning say, 12½¢ an hour for a 10-hour day, or a net amount of around \$25 or \$30 a month, is able, if he be a frugal liver, to save all except about \$7 a month which is about the cost of food in the camp kitchens. Fuel, hot water, and houses are provided by the plantation and as in most cases the stores are six or ten miles from the camps, the laborer is enabled to send back to Japan, or to China, about two-thirds of his earnings. For the islands as a whole,

the amount thus returned to the Orient is between three and five million dollars a year. The Japanese laborers, who predominate in numbers, usually make their homes in the camps and have their wives and children with them. The Chinese on the other hand live as solitary individuals and very rarely identify themselves with any community life, going to town occasionally being their only indulgence apparently. There are instances of Chinese laborers having lived 30 miles from Honolulu without having gone to town once in two years. Medical service is usually provided by the employing company, though in cases where justice is best served the cost is charged back to the individual.

Occasionally heavy tropical rains wash out large areas of plantings or carry deep deposits of mud down from the hills, destroying several acres of fruit at one time. Ordinarily, however, even this expected disaster is guarded against by a carefully arranged system of drainage. So important is this matter of providing for the overflow of rain that the whole plantation is laid out so as to conform to the natural slopes of the land.

The employment of comparatively large resources enables the Hawaiian pineapple planter to avail himself of steam plows, caterpillar tractors and in some cases light movable railways, so that the production costs have been reduced to a minimum, and it has been pretty definitely settled that under these circumstances pineapples of a standard size can be grown for ten or eleven dollars per ton. In 1915, when the market was over-supplied, on account of the heavy carry-over of the preceding year, the value of a ton of pineapples fell as low as \$4.00. This represented a loss to small growers of between \$6.00 and \$8.00 and constituted a catastrophe which swept many little Japanese growers and a good many white homesteaders into bankruptcy. It was only the large capitalist who could survive such a storm, but probably on the whole the lesson was beneficial, inasmuch as it shook out a good bit of erroneous enthusiasm and served to put the industry on a more conservative basis. For instance, in 1914 everybody was pineapple-mad

and all the gulches and table lands were scratched up and planted. It was foreseen that trouble was coming, but the somewhat inelastic market failed to absorb the increased product when it appeared. At the present moment the growers of pineapple are said to be getting as high as \$23 a ton so that unless some unexpected setback occurs the 1918 season should help to rehabilitate those who lost money during the past depression.

One very expensive item in the growing of pineapple is fertilizer. The volcanic soils of the islands will produce plants with great luxuriance but on account of their comparative geological newness they have only a small content of leaf-mould and quickly lose their vitality unless renourished by phosphate and nitrogen applications. There are two large fertilizer companies in the islands producing commercial mixtures drawn largely from the guano islands of the South Pacific. These corporations were designed principally to supply the sugar plantations, although their special preparations for pineapple culture represent about \$50,000 a year.

III. THE CANNING OF THE FRUIT.

The pineapple is received at the cannery in lug boxes holding about eight fruits. It is unloaded from the trains on a large platform, segregated according to size and run through specially made shelling and coring machines invented by Mr. Henry Ginaca. From these it is conveyed on long belts, past girls and women who deftly cut any deep eyes that may not have been taken out by the machine. The golden fruit then goes through a slicing machine and is packed in cans according to grade, the qualifications of the finest class being richness of color, absolute ripeness, heavy content of juice and delicacy of fibre. Broken pieces are side-tracked into different varieties used as crushed or grated pineapple for pies and jams. The perfect product is placed in cans on small wooden trays and carried by special trucks to the syruping machines which are exactly like those used in California fruit canneries. The

syrup now used is made from a solution of pure cane sugar sometimes mixed with the juice of the pineapple. Each can is automatically supplied with the requisite amount of syrup and is then carried on a conveyor to the steam cooker where it is sterilized before being capped. The double-seamer which puts the cap or lid on the can is the property of the American Can Company which leases its machines to the different canneries on about the same terms as are accorded to the California canneries. After this the can is conveyed through a second cooking machine and is then set out in the cooling room and flushed with fresh water from an artesian well. It sometimes happens that the very hot fruit in contact with the super-heated can is slightly burnt around the edges while standing after this second cooking and for this reason it is necessary to reduce the temperature as soon as possible. Automatic cooling machines have now almost entirely eliminated this danger.

After this the cans are taken to the lacquering machine where a special preparation is applied for the preservation of the tin. The cans are now ready for stacking in the warehouse where they will be held until a shipping order sends them off to New York or London.*

The first problem in canning pineapples is the sugar which is necessary in the preparation of the syrup. In 1916, canners sugar was selling at \$6.15 per bag of 100 pounds, as against a price of \$4.75 just before the European war, and for the 1917 pack the price was over \$7.00 per bag. This great increase usually has to be absorbed by the cannery and constitutes one of the chief concerns of the manufacturer. In a pack of a million cases of pineapple the amount of sugar used runs up to perhaps 2,000 tons and may be worth as much as \$250,000. From this it can be seen how important it is that

* Pineapple is packed in the following styles:

Sliced	Tidbits	Unsweetened Juice
Grated	Broken Slices	Cores
Crushed	Broken Pieces	Crushed Cores
Whole	Fans	Fingers
Dominoes	Confectioners' Sliced	Chunks

the making of the syrup should not involve any loss through over-cooking. One common source of constantly watched expense is the loss of sugar on account of oversugaring i. e. if a pineapple has reached a certain stage of ripeness it may not require exactly the same amount of added sweetness which a fruit less ripe would need, and in an outlay involving fifteen million cans it can easily be seen how an excess of sugar, however infinitesimal in each case, would in the gross run up in value to many thousands of dollars.

A second big problem is involved in the question of cans. In the Hawaiian Islands the American Can Company (the same corporation which supplies sardine cans in Maine and cherry cans in California) makes contracts with all the local canners for the season's needs at a differential price based on the market for tin plate. In 1916 the cost of tin cans in the Hawaiian Islands was about \$17.00 per thousand but for the 1917 pack we are informed that the pineapple canners have had to pay somewhere around \$20.00 to \$30.00 per thousand. As the cans enter the factory they are counted by a mechanical device and are stamped with a rubber stamp denoting the grade and variety of the contents. The factory of the can company is, in itself, a very interesting lay-out of complicated machinery representing a large investment. Here too the labor is chiefly performed by Orientals, although a large amount of the skilled attendance upon the machines requires a degree of intelligence directly reflected on the pay roll of the can factory. It frequently happens that pineapple, after having been stored for some time, or after having stood a long shipment, causes a loss from some faulty process in the canning factory and this loss is usually assumed by the canner, so that the wholesaler who buys the fruit is, on the whole, thoroughly protected in his purchases. The following sized cans are used:

California. This arrangement would eliminate a great deal of reduplication of work with many resultant economies. There are, however, a great many difficulties which seem to stand in the way of this happy solution. The great body of jobbers and wholesalers with whom, at the present time, the canners have all their dealings, depend in large measure for their profit on the business connections which they have throughout the country, connections which form a vital part of the whole system of distribution; and any disturbance of the equilibrium in this large and powerful body would at once raise a number of very serious sub-problems which it might be advisable to avoid. In other words, a re-organization of the whole system of canned fruit distribution might be involved in any attempt at the present time to tinker with conditions as they exist. By the Association of Hawaiian Pineapple Packers the problem in its entirety is being approached in an eclectic and theoretical manner with no special intention of disturbing the system of selling now prevalent in the United States. * * *

Summing up our brief study of the industry as it exists today we find that American skill and money have, in an entirely new field, demonstrated once again that when based upon an intelligent appreciation of the problems involved, there are ever recurring opportunities for healthy expansion. If it could be possible to put to some use during the winter months, say by the canning of some of the many fishes which find their habitat around the islands, the canneries which at present are used only for three or four months in the summer; or if some other tropical fruits could be canned with profit, the present industry would have still further stability. As it is, nevertheless, those men who have engaged in the industry, with sufficient capital to tide them over occasional lean years, and who are satisfied with a moderate though fair return, are firmly established in this outpost of American civilization and are rendering to the whole United States a genuine economic service.

HAWAII'S AGRICULTURAL STRENGTH AND WEAKNESS.

BY F. G. KRAUSS.

“**W**E HOPE ultimately to double the average yield of our crops per acre; it will be a great achievement; but it is even more important to double the desirability, comfort and standing of the farmer's life.”

If we accept as a truism that “the advancement of agriculture and the betterment of rural life lie at the very root of the prosperity and strength of a nation,” then Hawaii is potentially strong, although in a sense already prosperous.

Secretary of Agriculture Houston has recently said “Today all the people urban and rural alike are keenly interested in the supply of the necessities of life and recognize the supreme importance of making agriculture efficient and profitable, and rural life comfortable, healthful, pleasurable and attractive. More attention and more intelligent thinking have been directed to the fundamental problems in rural economics in the last few years than in any preceding decade, and it may be safely asserted that in the last three years more significant legislative measures have been enacted or pushed further to the stage of completion than in any similar period in the history of the nation. It is vastly significant that attention is no longer exclusively directed merely to the primary problems of production important as these are. The center of interest, as a matter of fact has tended to shift, and the rural life problem has begun to be conceived, as it should be—as broad and complex, and withal fundamental to the well-being of the nation.

Obviously, there is more to rural life than the increase in production, and the finding of markets more than a matter of profits and even of justice in distribution; and to limit the attack of our problem merely to these phases of it is inadequate and wasteful. It becomes necessary to look at the side of our

national economy in its deeper aspects as well, and while not neglecting the older forms of activity to do all in our power to organize rural life, to develop the moral, the intellectual, and broader economic, governmental and social interests. For in the rural districts, no less than in the urban district, is it life, and that more abundantly which we are interested in, and to which all the material things must minister, and certainly the time has come to bring it about that all the fruits of modern civilization shall not accrue to the marts of trade. The neglect of rural life by the nation has not been conscious or willful. We have been so bent on building great industrial centers, in rivalling nations of the world not fortunately circumstanced agriculturally, in manufacturing, fostering it by every natural and artificial device we could think of—so busy trying to make each city larger by a half-million or more people for the next census, that we have overlooked the foundations of our industrial existence. And so, as the President has recently said, “It has singularly enough come to pass that we have allowed the industry of our farms to lag behind the other activities of the country in its development. * * * *” Our thoughts may ordinarily be concentrated upon cities and the hives of industry; upon the cries of the crowded market place and the clangor of the factory, but it is from the quiet interspaces of the open valleys and the free hillsides that we draw the sources of life and prosperity. Without these every street would be silent, every office deserted, every factory fallen into disrepair.”

The time would seem to have arrived in Hawaii no less than on the mainland, when more serious consideration should be given to the problems of farm life than in the past. We may well say with ex-President Roosevelt, “The problems of farm life have received very little consideration and the results have been bad for those who dwell in the open country, and therefore bad for the whole nation * * * it still remains true that our whole national system rests upon the farm, the wel-

fare of the whole community depends upon the welfare of the farmer. The strengthening of country life is the strengthening of the whole nation."

It is only through earnest study and resolute action co-operatively asserted on the part of all concerned that a satisfactory solution of our complex rural problems can be brought about. It is through the lack of such constructive concerted study and action that Hawaii today shows her greatest weakness in the midst of an unprecedented material prosperity. Today, the small independent farmer, and the free lands of the government, whence should spring a strong and intelligent citizenship—the agricultural people who have ever constituted the foundation of our national strength and efficiency, if we desire to remain an independent nation, have received but scant consideration in the past.

No strong leadership has as yet arisen to direct and further the peopling of our government lands with a desirable citizenship, and to advance fairly the interests of the common people of the open country, of whom it is true there are as yet very few in Hawaii. If what we state is true and if therein there lies the weakness of our commonwealth which we assert,—then, lest we be misunderstood, should it be stated in justice to all concerned, that our inaction is probably due not to wilful or conscious suppression, but rather to thoughtlessness and ignorance of the fundamental laws of rural economics. When a people are as prosperous as we have been they are not prone to give much heed of the seemingly distant future, and "leaving well enough alone" seems a safe procedure. We are not of the radicals who would condemn our fellows whose thoughts and actions may run counter to our own. We believe that most men act according to their light, and if any have seemed to thwart our plans, arrayed against their own, they may have acted with the same earnestness of purpose as did we. We do not believe that any great and permanent reform can be brought about on the hypothesis that the other fellows are designing rascals and to proceed on this basis before we have

proof. We do not believe that the ordinary "investigation" of our problem of land settlement will get us anywhere. What is needed at this time is a serious and thorough study of our land question by a competent body of broad-minded men who have only the permanent welfare of the community at heart. When adequate facts have been assembled to justify a complete analysis of the situation, we may proceed to recommend to the President and Congress that legislation be enacted to safeguard the rights of the people. These are the safe and logical means now being pursued by our Federal Trade Commission in determining the status of our great commercial operations during this the great crisis of our generation.

In discussing our weakness, no less than our prosperity, let us remember that our whole economic system has been undergoing a complete and fundamental change. This has resulted in profound social changes, and the re-direction of many of our points of view. In some occupations the readjustment to the new conditions has been rapid and complete; in others it has come with difficulty. In all the great series of farm occupations the readjustment has been tardy, because the whole structure of a traditional and fundamental system has been involved. It is not strange, therefore, that development is still arrested in certain respects, that marked inequalities have arisen, or that positive injustice may prevail even to a marked and widespread extent. All these difficulties are the result of an unequal development of our contemporary civilization. All this may come about without any intention on the part of anyone that it should be so. The problems are nevertheless just as real, and they must be studied and remedies must be found.

In closing this simple though not unimportant text, the writer cannot refrain, at this time of deep concern, to recall the illustrious words of Garfield, that—"At the head of all the sciences and arts, at the head of civilization and progress, stands—not militarism, the science that kills, not commerce, the art that accumulates wealth—but *Agriculture*, the mother of all industry, and the maintainer of human life."

HAWAII IN WAR TIME.

BY ARTHUR JOHNSTONE.

NESTLING in the depths of the Pacific, Hawaii labors apace and dreams withal. Nor does she work and dream in vain. Her canefields fill her mighty warehouses with shiploads of sugar, and her dreams of home and of the outer world mostly come true, because they are founded on mental realities and material facts. Situated by geographical fate so that the Eight Islands are sea-girt by varying thousands of miles from the surrounding civilization or barbarism, as happens, her only means of communication with the world are by sea or cable. Her nearest continental landfall lies east by north more than two thousand miles away. Hence, as modern science points out, our position and semi-isolation have had much to do, during the past century, with the development and progress of island life; in truth our ethnographical situation has directly and continuously affected our material progress and mental culture. Among other traits, it is a fact frequently noted by strangers, that the mental point of view of our people has an unusually wide angle when brought to bear on the political, social, and economic conditions of the far-away world. The cause of this intellectual breadth is that as a people the islanders have learned to observe from a distance, and hence more critically, the affairs of those of the outside world. Thus they have learned to judge without the prejudice of part-takers, and it follows that their observations in general have been of a judicially exact and sober order, as they continue to be.

It is a fact, also, that it was early in their national life when the islanders began acquaintance with the men of civilization. Their tuition began with the pricking of the too fre-

quent diplomatic bubbles which were blown for their savage admiration — and subsequent downfall. It is true that the demolition of these political schemes was not accomplished without the aid of their early American friends, who were wise in their generation, and whose progeny have inherited their wisdom and patriotism even to this day. In consequence of such an experience as this, the islanders have acquired a habit of thought and action which has nurtured, and at the same time guarded, our culture and progress ever since. It will not be surprising, then, that when this great world-war was imminent and threatening, that Hawaii should view it with a sober eye. When it burst in full fury by the deliberate invasion of a weak neutral state, our people at once branded the Germans as a nation degenerate, as moral dastards dishonored in the present generation, and, perhaps, beyond redemption—a view which, in the fourth year of the war, is justly held by all nations, except the Huns and their congeners, the infamous Turks. At this point the pretexts of international politicians and diplomats disturb us not. The namby-pamby of ultra-altruism touches not our hearts. The cries and illusions of the peacemakers we heed not at all, for our duty and our forward way is pointed out by the truthful observation of provable facts, and by the light of a patriotism that never fails.

In Hawaii our people have learned well their lesson from human nature, namely, that the world's kings have taught their subjects that the man-power of the nation is to be wasted, whenever necessary, for the elevation of royalty and wealth; but that Democracy has always taught and still teaches that the man-power of nations must be conserved at all times for the elevation of the states themselves, for the advancement of the individuals composing them, and hence for the amelioration of mankind at large. The kingly state is now viewed, with few exceptions, as a useless by-product of the political past, an unsaleable commodity which has become worthless

with the "rise of man". Men the world over now see that the great patchwork of human aims, political systems, social institutions, and widespread superstitions, called civilization—out of which our human progress slowly emerges after finite pains and lifelong struggles — is but an aggregate result of a conflict for supremacy between social and political conditions, and practical reason. In the past century reason, the world over, has proved its fitness by victory over the emotional nature of men, and at the present time the light of mental progress is driving away the long twilight of unverified political and religious systems and beliefs. This has resulted in shaking the foundations of authority and belief the world over, and especially to the consternation of those two extremes of human government called autocracies and European Socialism, neither of which systems upon test are found to square with or fit into the democracies of freedom. It is to the praise of Hawaii that such fundamental social facts, among others as necessary, have been recognized here since the introduction of civilization in the year 1820, or thereabout.

In wartime all things change. The abnormal literature of namby-pamby arises wherever the emotions of men, either through ignorance or unbalanced temperament, gain the control over their reason, judgment, and the general principle of human justice which should inhere in all of our actions. In Germany this took on the assumption of "God control", whatever that may mean, and otherwise she developed the evil form of senseless hatred or the "strafing" of the free peoples whom she has since sought to conquer or destroy. In England and France events came on so rapidly when the war broke, that namby-pamby found but little chance of organizing its mawkish sentimentality against national safety. But in the United States, where things take shape on the large scale, and where the enervations of prolonged peace and material wealth had extolled ultra-altruistic sentiment, the foolish ideals of the namby-pambyists and pacifists were soon exalted to the temporary exclusion of the stern realities of life and the still sterner

reality of the manhood of the nation. An injury to the habitual patriotism of America was the result which has been counteracted only after a year's active preparation for the coming conflict. This wave of evil which swept across the country officially and unofficially, and which was backed by hyphenates and Germans generally, was started by Wm. J. Bryan and his namby-pamby following enlisted from church, political, and educational factions, and also from the pacifists and others in sympathy with the enemies of the entente cause and freedom. A change of heart is said to have come at a late hour to Mr. Bryan and, hence, to some of his followers, but this of course does not cure the mental deficiency which led them to become for the time traitors to humanity in general and democracy in particular.

This wave of Bryanism and ultra-altruism reached Hawaii early after the war began, but it was quite barren of results here. Never for a moment did our island people hesitate in either their patriotic or humanitarian duties. By that time we were already at work and were raising funds to aid the stricken Belgians, the patriotic French, the British soldiers, and the Red Cross. Nor did Hawaii refuse, where they were offered, to forward contributions to the shameless Germans who were already busily perpetrating shameful and nameless atrocities on every battle-front in Europe and, wherever it was possible, at sea. In fact the many good works of the men, women and children of the islands have been carried on throughout nearly four years of death and destruction. They will be so continued until the defeat and overthrow of the Central Allies is complete; and it will not be complete until their people have learned the lesson of Germany's responsibility for this uncalled for and bitter war. As time runs the war work in the islands increases and widens, until now, with our own army and navy already in the struggle, it again doubles and triples, with the end not yet in sight. The Red Cross in Honolulu alone has a membership of nearly twenty thousand, and is rapidly spreading to the central districts of the outlying islands, where the

good work is being urged forward. One of the creditable directions which our local war work has taken is the raising of individual funds to be applied for conserving the lives of the orphan children of France, and providing for their maintenance until better times. This may be considered as the real and ideal succor of whatever gods there may be.

When the United States declared war Hawaii had already its quota of the national guard well filled, and in consequence has received at different times compliments from Army headquarters for our spirit of preparedness. Indeed the interest taken in military affairs here during late years, and the enthusiasm shown by our local officers in securing the efficiency of the guard, is well known; and now that our war bugles are blowing from afar, our interest grows more intense since we now have large numbers training in the reserve camps under the regular army officers. In preparation for the draft Hawaii has done her duty by giving a full registration with the fewest number of slackers. This fact, after our very cosmopolitan citizenship is considered, is quite remarkable, since our allotted quota of troops under the draft is out of comparison to the number of Americans in the islands. Another noteworthy fact is the enthusiasm shown by the Japanese boys born here, who have raised a full company for the national guard. Of the British colony little needs to be said, since their well-known traits of fervid patriotism and daring-to-do-things, quite equal those of their American cousins in quality and in scope of action. Hence it surprises no one that the colony has sent to the front a large portion of its available men.

The promptness and unity of Hawaiian action is of course largely due to our geographical habitat and semi-isolation, as before mentioned, as is also our rather emphatic viewpoint of this unjust and infernal German war, which has wrecked so much of the well-earned peace of unoffending nations. We have long accustomed ourselves in Hawaii to make sacrifices for the public good or for those in need. Since the times of

the early missionaries to the present many sacrifices of the best things attainable in life have been willingly made. The enjoyments of peoples more favorably situated have not been ours; yet the islanders have nevertheless taken a very wholesome if sober view of the pleasures of the outer world, and have fortunately learned, at the same time, to call both its joys and evils by their proper names. The joys of life, whereof we have missed many, seem to be enhanced mayhap, but at the same time we are aware that we have also missed many of life's evils which are unregretted, if not altogether unknown. Slow to believe evil of our fellow men, we held judgment in abeyance when first we began to hear of the evil doings of Germany and the Germans in the war. At first the Germans blamed it all to the "lying English slanderers". But before long the evidence began to accumulate from such reliable sources, and to such a degree, that even the German government ceased almost wholly to make denials; but as a counter-defence began sending periodic dispatches containing vaguely stated charges of atrocities alleged to have been made by the entente allies against the Germans. Think of that! and compare it mentally with the past four years of the idiotic diplomacy of the Germans, which has at last happily fetched them to the beginning of a humiliating end, with the accompanying imminent downfall of the worst autocracy that has ever damned the prosperity of a brave people.

Yet the Hawaiians, like the bulk of free men, have not much sympathy for the German people, and they certainly have far less for the Hohenzollern dynasty. There are ample reasons for this widely distributed resentment by the men of the free nations; and right here inexorable logic compels informed minds to obliterate for once and all that foolish theoretical distinction which altruism and namby-pamby have attempted to make between the Prussian Government and the German people. Practical reason demands that where a government, after four decades of secret preparation, becomes guilty of a policy of international aggression and general evil, that its

subjects who have backed with treasure and men its ruthless and shameful course during three years of open warfare and oppression, are equally guilty and criminal in practice. To assert now, with the inevitable defeat of the Central Allies in sight, that there is a discernible cleavage between the German people and their government, is of no avail; for this people would have followed their Prussian Government to victory with cheers and shouts, just as they must soon go with it to defeat, but with their cheers changed rather to curses fervent and deep. There is another evil phase among the many of this unjust war, wherein the subjects of the Kaiser must bear with him great moral odium. The entire nation, with the Kaiser, has trusted in and believed that the power of a Prussian lie persistently told would benefit and advance German interests, and would, from its point of view, therefore be justifiable; this doctrine the German people have endorsed heartily to the present moment, nay, they have individually aided it by wide and vigorous propagandas to influence or deceive the scattered nations of the earth. It matters not that the German people were in their turn fooled by their government. The truth stands that they were morally bound to investigate for themselves in so deeply serious and criminal a business as the waging of world-war. Hence even in trusting the Kaiser blindly—whereof there is little or no evidence—they have shouldered the national responsibility of his schemes and of the horrible crimes committed against humanity by their government. Yet this “simple German people” has the shamefast nerve to ask with a show of hypocritical tears, Why is all the world against Germany? The answer is as “simple” as the Germans claim to be: Because the outlaw hand of Germany and the Germans has been raised against the freedom of humanity by making a war of conquest against the free nations of earth.

The voice of the west is raised for liberty and democracy from the Canadian forests in the north to the sunlit savannas of South America, from the frozen heights of Alaska and

British Columbia to the Christmas gardens of Hawaii and Australia. Where the seven seas join and end, the stars of Liberty are kept shining in the infinite sky of Freedom by millions of finite men. Where her stars shine on the brow of the world her glory shall increase until at last the nations shall forget even the names of the kings, the tyrants and the priests who have troubled and delayed the progress of mankind to freedom. Those rulers of earth who have hitherto opposed the political and social rise of man have already received their reward—the curses of a wiser posterity. The few who are now trying to abridge the liberty of men and nations shall soon receive their reward—the just reward of a national humiliation and defeat at the hands of the democratic spirit of the age. So it happens that the love and admiration of we Hawaiians turns, and justly turns, to the nations of brave men who are fighting for world-liberty against

“The Wolfmen, dread Wolfmen! O the Teutons and the Turks!
Beneath whose cruel banners Earth’s direst evil lurks.”

Of all the hosts now fighting for liberty, we know best the traits and characters of the French and English, the Canadians and Americans, the Italians and Australians, but we always return to the French, the English and the Americans as representing the typical elements of the war. Yet we are sure that as Americans—and hence as Hawaiians—we feel that we are much nearer to England than to the rest of the entente allies; for are we not very largely flesh of her flesh and bone of her bone? And have we not been so ever since the days of the revolutionary war, when our cannon thundered defiance to the mother nation? In war time, then, we are warranted in calling ourselves the first cousins of the English, by the light of our similar social and political institutions, and by our community of love for fair-play and equal justice to all men. Such traits have always dominated the Americans and English in their dealings with the world at large. Let us all then together, Canadians, Americans and Australians, hail the

mother-country from afar, and let us shout our war-time greetings in the united Voice of the West:

O mother of great nations, staunch and free
Our England stands before the foes of Man!
The Imperial Teuton daunts her not, nor can
His ruthless Huns and barbarous Turks decree
The wreck of Freedom which he longs to see.
His well-planned lapse to savagery began
Too late. Democracy hath placed her ban
On Power; saith all are heirs to liberty,
And pointeth calmly to the radiant West
Where England's children by new millions spring,
All clad in garments which have made them blest.
Ah! mother of our nations, here we sing
Of thee, and o'er far seas hear now our cry,
Yea, we will stand by thee, by thee will die!

THE RED CROSS IN HAWAII.

SHORTLY after the outbreak of the Great War the need was felt of some definite channel through which monies could be forwarded to the stricken countries and as a result the War Relief Committee was formed, headed by Mr. W. R. Castle. This Committee did very little actual soliciting but through its means \$154,054.00 was sent on prior to July 1st of 1917, the great majority going to the Allied countries. The Committee in each instance forwarded the cash in accordance with the instructions of the donor, unless no instructions were given, in which case the Committee sent the funds to those countries appearing most in need of assistance. France, Armenia, and Serbia were among the large beneficiaries.

Following the War Relief Committee the Hawaiian Allied War Relief was organized. The purpose of this work was the manufacture and forwarding of supplies of all sorts to the Allies. It made no pretence of being neutral, and Hawaii early showed its sympathies by the enthusiastic support given this organization by the ladies of the community. Units were

established on the various Islands, headquarters being at Honolulu. Supplies were shipped through the War Relief Clearing House, with headquarters in Paris and New York. Cases of supplies from Hawaii were a welcome sight at the front therefore in the early part of the year. Miss Beatrice Castle and Mrs. Henry Damon have been the active heads of this work, supported by a most loyal band of assistants.

Classes in first aid have been conducted under the leadership of Mrs. G. P. Wilder, who has been most enthusiastic in all her Red Cross work.

With America's entry into the war there was of necessity a change throughout the Territory. A chapter was formed in Hilo with jurisdiction over the Island of Hawaii. The Reverend Mr. Bodel is its president. An auxiliary was formed at Lihue, Kauai, with Mrs. Charles Rice at its head. This auxiliary, besides doing its regular work, held a membership drive on July 4th, bringing in some 600 members.

In Honolulu at the end of June the War Relief Committee became an auxiliary of the American Red Cross, and in September a chapter, under the name "Honolulu Hawaii Chapter", with jurisdiction over the Island of Oahu. Its officers are E. D. Tenney, Chairman; George R. Carter, Vice-Chairman; C. H. Cooke, Treasurer, and A. L. Castle, Secretary and Executive Officer. Arrangements were perfected to make use of the splendid organization of the Hawaiian Allied War Relief, rather than to start separate auxiliaries. Under the arrangement that organization became an auxiliary of the Honolulu Hawaii Chapter, by special permission of the American Red Cross, its supplies being shipped to the Red Cross Supply Depot in New York City. This gave to the English and Scotch ladies, who have loyally stood by the Hawaiian Allied War Relief in its change to the American Red Cross, assurance that the supplies would be used where most needed at the Allied front. This work is now carried on in the old Throne Room of the Capitol, where surgical dressings are made, at Beretania and Miller streets, headquarters for hospital gar-

ments, and at the various units on Hawaii and Kauai. A handsome Red Cross flag was presented to this organization by the late Queen Liliuokalani, whose interest in Red Cross work in her last days was most touching. One of her last acts was to be wheeled on to her veranda on the day of the Red Cross drive and to take out a Patron membership.

The work in Honolulu is now well systematized. The Chapter handles all donations. It seemed best to try for monthly donations rather than to rely on special drives for money. As a result of steady work and the natural generosity of Honolulu firms, corporations, and individuals, the Chapter's income is running over \$15,000.00 per month, the regular pledges being in various amounts from \$1.00 up to approximately \$1,000.00 each month. This money is used first to pay the bills of the Hawaiian Allied War Relief for surgical supplies and hospital garments, and the present balance goes direct to the American Red Cross War Fund, administered by a council in Washington, up to the end of November some \$71,000.00 having been remitted. Through the foresight of T. H. Davies & Co. of Honolulu the supplies purchased by the Hawaiian Allied War Relief have been very reasonable, comparatively. Money is forwarded by the Bank of Hawaii without charge, and goods are carried by the Matson Navigation Company free. From now on a certain amount of money will have to be held in reserve for Relief purposes with more and more Hawaiians going into active service, as aid to needy families as a result of any casualty must come, temporarily at least, from the Red Cross. In this connection a Bureau of War Records has been opened to keep track of all residents of Hawaii in active service with the Allied Armies.

The work on the Island of Maui is conducted along similar lines to that of Honolulu, Mrs. Frank Baldwin heading an auxiliary at large, called the Maui Auxiliary. The Island is divided into districts and the work, both as to supplies and cash donations, is being handled efficiently. This auxiliary works in cooperation with the Honolulu Hawaii Chapter, and

the Kauai shipments are also handled through Honolulu.

On September 29th in Honolulu occurred a mammoth membership drive. The city was divided into three main divisions, two handled wholly by the ladies, and the business section by the Honolulu Ad Club. In addition there was a Japanese Committee headed by Consul-General Moroi and a strong Chinese Committee. In the outside district every part of the Island was covered by district leaders. The result was rather surprising. In one day 16,332 members were enrolled, or one-sixth of the entire population of the Island, membership including 24 Patron and 442 Life members, netting some \$38,500.00. The portion of dues sent to division headquarters in San Francisco was \$27,430.00.

The scope of this article does not permit one to touch on outside activities or to cover all people in Red Cross work, but mention should be made of the work of the Navy League, who are now assisting the Red Cross; that of Miss Wilhelmina Tenney and Miss Elsie Wilcox in the Red Cross canteen work in France; that of ten young men who are now with the United States Medical Corps as ambulance drivers; that of W. R. Castle, Jr., at the head of the Bureau of Information of Casualties for the American Red Cross in Washington, and that of ten Red Cross nurses who at the end of November were momentarily expecting orders to proceed to the front.

THROUGH the searchings of the Federal Experiment Station, in the interest of Hawaii, there has been received recently a consignment of algaroba seeds from South America, apparently the pure strain, resembling the local product, and strengthening the impression as to that country being the probable source, or origin, of the algaroba of these islands.

THE third and closing portion of the first volume of the "Fornander Collection of Folk-lore," with copious index, forming Volume IV of the Bishop Museum Memoirs, is nearly through the press, to be followed in due time by two more series, or volumes, to complete the collection.

EARLY DAYS IN THE REIGN OF KAMEHA- MEHA IV.

HONOLULU REMINISCENCES OF THOMAS G. THURM.

Continued by request.

BRIEF mention was made in my closing paper of 1853-54* of the favorable impression made by Kamehameha IV. in his inaugural address at Kawaiahao church, which ceremonies took place at noon of January 11th, 1855, the day following the funeral of good King Kamehameha III. As may be readily understood the event drew out a vast concourse of people that filled the building within and crowded it without. To the outside multitude an address in Hawaiian was given from the steps of the edifice at the close of the church ceremonies of reading the last will of his late majesty and taking the oath of office. This seal of the covenant, as we may say, complied with, was followed by an address in both English and Hawaiian languages (for the king was a fluent speaker and accomplished English scholar), that carried the impression of sincerity in his high aims for an administration worthy the ideals of present-day civilization and progress. He instanced this as a new era and a critical period in the country's history but it was not a time to despair. Promising a mild and liberal government "with sufficient vigor to maintain the laws securing rights of persons and property and not too feeble to withstand the assaults of faction" he looked to the people for aid in maintaining the constitution, supporting the laws and upholding our independence. Reference was made to his predecessors as "preeminently the friends of the foreigner", and said further:

"To be kind and generous to the foreigner, to trust and confide in him is no new thing in the history of our race.

* See ANNUAL, 1915, p. 61.

It is an inheritance to us from our forefathers. * * * I cannot fail to heed their example. I therefore say to the foreigner that he is welcome. He is welcome to our shores—welcome so long as he comes with the laudable motive of promoting his own interests and at the same time respecting those of his neighbor. But if he comes here with no more exalted motive than that of building up his own interests at the expense of the native—to seek our confidence only to betray it—with no higher ambition than that of overthrowing our government and introducing anarchy, confusion and bloodshed—then is he most unwelcome.”

The town was not wanting in those days of a coterie of narrow-minded individuals who not only failed to appreciate the aloha basis of this public expression of Hawaii's new king, but sought to thwart its purpose of good-will by magnifying the string tied thereto by harping on the unwelcome strain. How much of this spirit emanated from sympathizers if not aiders and abettors of the late contemplated filibuster scheme¹ to capture the islands I know not, but there was doubtless a connection, and the king being well aware of this, as also the “near” annexation project² of 1853, we can readily see and appreciate the point of this royal utterance.

Captain Tom Spencer, ship chandler and well-known character of Honolulu, hail fellow well met with royalty and other high dignitaries, used to say that he was the one entitled to the credit for blocking the annexation project above referred to, by his advising Liholiho (then prince and heir), against signing away his rights, and remaining away on the other islands to be free from court and official influences “till the clouds rolled by”. Staunch American though Captain Spencer was ever known to be, he took pride in this stand at that time in favor of Hawaiian monarchical rule.

The only change made by Kamehameha IV^{*} on announcing his new cabinet was in the appointment of his sister Princess

¹ ANNUAL, 1915, p. 49.

² Ibid, p. 47.

Victoria Kamamalu as Kuhina Nui, in place of Keoni Ana. The cabinet therefore consisted of:

R. C. Wyllie, Minister of Foreign Affairs.
E. H. Allen, Minister of Finance.
John Young, Minister of the Interior.
R. Armstrong, Minister of Public Instruction.

Hon. Wm. L. Lee was retained as Chancellor of the kingdom, though through impaired health he had tendered his resignation as chief justice the early part of the preceding month, only to receive a very gracious and solicitous letter from the king, supported by the Cabinet and the Bar association, requesting its withdrawal, and seek to regain his health by a change of clime and scene as a duty he owed both the nation and himself, "that I may long be happy in your services".

A change took place in the Supreme Bench at the opening of the year by the appointment of Hon. Geo. M. Robertson (father of the present chief justice), as associate justice in place of Hon. L. Andrews, who was commissioned judge of probate.

In March, Judge Lee left for Washington, as the king's envoy extraordinary and minister plenipotentiary, empowered to negotiate a treaty of reciprocity between the two countries. The Judge was highly successful in this mission, notwithstanding his severe indisposition, but twenty years passed before the senate set its approval on such closer commercial relations with Hawaii.

The regular session of the legislature of 1855 convened April 7th. Hon. G. M. Robertson was one of the members representing Honolulu, and was elected speaker of the house, and O. H. Gulick was chosen clerk, and is the only survivor of Kamehameha IVth's first legislature. Things did not run smoothly in the consideration of financial matters between the two houses so that they came to a dead-lock; the lower house refusing to confer with the nobles on the appropriation bill. His majesty therefore dismissed the body, June 10th, and

ordered a new election. On the extraordinary session convening, July 30th, the assembly was plainly told by the king it had but the appropriation bill to deal with, and to confine expenditures to the estimated revenue. "It is useless", he said, "to make appropriations for appearance sake that will not, because they cannot be acted on". On completing their labors the sum total of the appropriations amounted to \$447,933.73 for the annual term.

The day following the above straight talk to the law makers the king shone forth in a new role as a true friend of the seafaring class of the community in his address on the occasion of laying the corner stone of the Sailor's Home, an appropriate event in the observance of the national holiday, July 31st, commemorating the restoration of the Hawaiian flag by Admiral Thomas, twelve years before, that had been so unjustly lowered the early part of the year by Lord George Paulet, for alleged wrongs to British subjects.

His majesty on this occasion spoke as follows:

"The laying of the corner stone of an edifice destined to add to the welfare and happiness of seamen is an occasion interesting to every member of this community. The hardships with which the sailor contends, and the dangers which he braves brings us ease and security. Had he never steered his ship into our waters, Honolulu might simply have retained its position as a fishing village or become by this time a deserted beach. I hope the day has passed for any class of men to be valued only for their strength and adaptability to the purposes of others. The sailor, the miner, the seamstress, and even the slave, for generations to come, will all have cause to bless the Nineteenth Century. In raising this Home, we endeavor to act in accordance with the Spirit of the Age, by seeking to ameliorate the condition of a preponderating element of our foreign and a very considerable one of our native population.

The moral wants of the sailor demand our care equally with those that are physical. The facilities offered to him on shore as a reasonable and responsible being should be multi-form, in order to counteract the disadvantages inseparable from

a life at sea. For his own sake, and that of every community he visits, he should ever be found an orderly and intelligent member of society; institutions of this character will help to make him so. Entertaining these feelings toward sailors, I did not hesitate to assist in the ceremony of today, and I esteem myself happy that my name is associated with this good work."

The address of the President of the Society, Hon. E. H. Allen, was one of special historic interest touching the conditions and needs of seamen at this port that had met so generous a response for their amelioration, not only throughout the islands, but in sea-ports abroad that had reaped Honolulu benefits in days gone by, so as to encourage the trustees in hastening forward the project.

In proof of this statement the Home opened for service in just thirteen months from the laying of the corner stone. The ground for the enterprise was granted by King Kamehameha III in privy council, and occupied the corner of Bethel and Merchant streets, the site now of the Yokohama Specie Bank. The building was an L shaped, three-story wooden structure, with protection and comfort of verandas front and back; all slate roofed. Chas. W. Vincent was the contractor for its erection.

Through Rev. S. C. Damon, Seamen's Chaplain and indefatigable worker for the interests of "those who go down to the sea in ships", the Thrum family was closely identified with the opening and early years of the Honolulu Sailor's Home, but this is not the time or place to deal with its history, much less intrude personalities in connection therewith, except to show its efficient first Board of Trustees and Officers. There were eighteen trustees, comprising: E. H. Allen, R. Armstrong, I. Bartlett, C. H. Butler, W. St. M. Bingham, S. N. Castle, as first class; S. C. Damon, R. G. Davis, John Li, G. B. C. Ingraham, W. Johnson, G. P. Judd, as second class, and W. L. Lee, W. Newcomb, G. M. Robertson, T. Spencer, J. T.

Waterhouse and H. M. Whitney, as third class. Of these the following were chosen its officers:

Hon. Elisha H. Allen, President.

G. P. Judd, M.D., Vice-President.

Wm. St. M. Bingham, Secretary.

G. M. Robertson, Treasurer.

Rev. S. C. Damon, Wm. H. Johnson and I. Bartlett, Executive Committee.

In June of 1855, Honolulu was called to mourn the death of Hon. A. Paki, termed "the last of the family of old high chiefs", whose ancestors belonged to the Kamehameha and Kiwalao families. He was born on the island of Molokai about the year 1808, hence not far from 47 years of age at the time of his death. He was a man of commanding presence, fully six feet in height, intelligent in countenance and of ehu (very light) complexion. In addition to his high rank, or by virtue thereof, he held various important official positions, for he was esteemed for his high character and firmness. Naturally he was much lamented by a wide circle of friends, both foreign and native, and particularly by the chiefs. Konia, his wife, survived him but two years.

A movement was started in the summer of 1855 to obtain funds for the erection of a monument to the memory of Kamehameha III. A meeting of organization was held at which Prince Lot Kamehameha was chosen president of the association—as it called itself—C. G. Hopkins, secretary, and E. H. Allen treasurer. It was weighted down by several vice-presidents, an executive committee of four, and an agent in each district to collect subscriptions and turn in to the treasurer. Thus organized, and the sum of \$2000. subscribed from among those present, the meeting adjourned to report at the end of three months, but enthusiasm in the subject apparently waning, the contemplated November meeting was not called. Disagreement among its friends as to the best form the monument should take was believed to be the reason the project failed to materialize.

I come now to the important event early in the reign of Kamehameha IVth., viz., his marriage to Emma, daughter of Dr. T. C. Byde Rooke, and granddaughter of John Young, friend and counselor of Kamehameha Ist, which event took place at Kawaiahao church on a perfect day in June, the 19th, 1856. The skies were bright with trade-wind fleecy clouds; the populace was bright with joy and anticipation of the auspicious event; the town and shipping was bright with flags and streamers befitting the occasion, all of which betokened a veritable gala day.

King street from the palace to the church was carpeted with rushes and a marsh grass, and was flanked on each side of the roadway by the military and throngs of spectators. The church itself was decorated and festooned with floral and maile wreaths to an unusual degree, for the occasion was Hawaii's first public royal wedding—and it has proved the last. A platform was erected in front of the pulpit, on which the ceremony was performed in full view of the whole audience. Rev. R. Armstrong officiated, using the Episcopal service, in both English and Hawaiian. The bridesmaids were Princess Victoria Kamamalu, Princess Lydia Namakaeha (late ex-Queen Liliuokalani), and Miss Mary Pitman. His Majesty was attended by his brother Prince Lot Kamehameha.

As the wedding party were driven back to the palace through the avenue of loyal subjects, at the close of the ceremony, salutes were fired from the forts and a French vessel-of-war in port. Diplomatic felicitations followed shortly after, and in the evening a grand ball was given in the palace, for which occasion the building and grounds were brilliant with transparencies and illuminations, carried out by Marshal W. C. Parke and Paul Emmert, a Swiss artist. Several residences and hotels of the town were decorated in like manner for the evening.

A few months later the king contributed to the native paper, *Hae Hawaii*, an account of a trading experience he had

with natives in a recent visit to Molokai, which has a lesson for present-day agricultural effort. In substance the account was as follows:

“On arrival at Kalaupapa a vessel was met that had come to secure a cargo of potatoes, so I thought to enter the market, too, and the price being satisfactory, 75 cents to \$1.00 per barrel, it was arranged that the potatoes should be delivered the next day.

In the morning one of the traders came and said: ‘We have consulted together respecting our potato trade, and we propose to give you as many as you wish.’* This I refused, having two vessels at anchor there, and said: ‘I have money and you have potatoes, now let me have your product and you take the money.’ They replied: ‘The potatoes are for you, but the man who shall bring us the money for them, both he and the money will we throw into the sea.’ I therefore reluctantly accepted their generosity. I was pleased to find them possessing the means for exercising their liberality according to their desire, and laboring diligently, with the sweat of the brow, according to command. It gladdened me to see the fruit of their labor. Having acquired the means they could trade, and because of their abundance they could give.”

(Signed) KAMEHAMEHA.

On November 13th the Chinese merchants of Honolulu and Lahaina united in giving a grand ball to their majesties in honor of their recent marriage that proved not only a great success but the most lavish affair of the kind Honolulu had ever known. The ball was given in the court house, and was said to have cost the Chinese \$3,700. Everything passed off with great decorum, and even the novelties and success of the supper was long the talk of the town.

A prominent decorative object of utility was a large octagonal-shaped lantern, very Oriental in its ornamentations, the

* This was in observance of ancient Hawaiian custom.

panels of which were of white transparent rice paper arranged, evidently, in double or recessed form, between the space of which, miniature birds, fish, and other objects floated about, or rose and fell, as they were affected by the heated air from its many candles when lighted. It was far beyond my boyhood comprehension then, and recollections from time to time since still invoke wonderment at its ingenuity.

A few subjects belonging to the events of 1855 may be mentioned here before closing this period.

During that summer there appeared in the bookstore of H. M. Whitney a new work on Hawaii, entitled: "Sandwich Island Notes, by a Haole", published by Harper & Brothers, New York, which created something of a stir, especially after a caustic review thereof in the *Polynesian* gave it publicity. The book was apparently written in the interest of the late annexationists, but with facts and figures so warped, and the courtesies extended the writer in his tour of the islands so betrayed, as to utterly fail in its purpose of winning favor. The review, in two parts, which appeared in the *Polynesian* of August 11th and September 1st, handled the author and his production without gloves and in several places furnished rich reading. The reviewer at the outset scored the community at its supineness, remaining apparently indifferent alike to blame or praise, questioning "whether it is want of proper pride that numbs us, or a contempt of public opinion that steels us "to accepting such without protest". How many of these same experiences this island-community has suffered at the hands (or pens) of like transient free-lancers. At its close "Haole" is revealed as alias Mr. Wm. Baker, alias Mr. Washington Bates. It was under this latter name he traveled through the islands.

That Honolulu believed in the time-worn adage:

"A little nonsense now and then
Is relished by the best of men"

was well exemplified in the visit of the famous Backus Minstrels, in September, from San Francisco, en route for the

Colonies. They gave several entertainments in the Royal Hawaiian Theatre during their week's stay to crowded houses, and on two occasions they held forth by request at the palace to enliven evening hours. The editor of the court journal admitted having attended and enjoyed every performance, and commenting thereon said: "The little town has been quite excited, commerce had left its books and came near forgetting the proprieties in going to see the minstrels."

Backus and his company made a pop visit here on their way back, the following year, and refreshed mutually pleasant memories; the town for its enjoyment, and the visitors for a financial success that led to "tall" statements by Backus on reaching the home land which appeared in a prominent journal in the middle west reflecting on the missionaries that met with a response and vigorous denial from *The Friend*, beside a little preachment on "telling untruths to the million being as heinous as telling an untruth to Mr. John Smith".

During the following shipping season Honoluluans were entertained by two full-fledged circus companies, the National of Lee and Marshall, and Long and Raphael's Great Western, besides theatrical performances at the Royal Hawaiian, and occasional concerts at the court house.

Among the new enterprises dating from this period is that of soap making, which was inaugurated at Lele, by Messrs. Packer, Abbott and Feters. Changes in ownership, in time, brought the concern into the control of Feters and Rawlins, and in due time a rival factory as a next-door neighbor, conducted by Geo. Huddy, both of which concerns contributed largely to satisfy local needs for many years in the common grades.

During this period of 1854-56 several changes in business circles occurred, more particularly in concerns identified with shipping interests. The whaling business may be said to have been at its height at this time, and the trans-shipment of oil and bone (the catch of vessels refitting for further cruising), to eastern ports via Cape Horn, brought to the ports of Honolulu

and Lahaina in the fall and spring seasons quite a fleet of the noted clippers of those days for this service. Local interest in the Arctic whaling industry took more definite shape, with the encouragement of 1854's successful season to warrant further ventures, so that by 1856 the Honolulu owned fleet of whalers and traders comprised two ships, three barks, six brigs and three schooners, representing the enterprise of Allen & Co., R. Coady & Co., Capt. J. M. Green, Hoffschlaeger & Stappenhorst, Jas. Makee & Co., Melchers & Co., C. A. Williams & Co., and a little later several others. A full account of the rise and fall of the local interest in this industry was given in the *ANNUAL* for 1913, entitled "Honolulu's Share in the Pacific Whaling Industry of By-gone Days."

This series of reminiscences of Honolulu sixty or more years ago would be incomplete without a sketch of the men of the times, a number of whom have been mentioned in passing. It will be my purpose, if spared, to recall for the Forty-fifth issue of the *ANNUAL*, brief memories of those worthies, the benefit of whose labors Honoluluans of today enjoy.

HONOLULU HALE, Honolulu's first executive building, at the formation of a constitutional government, in 1843, is a thing of the past. This old landmark of Merchant street, adjoining the Post Office, having outlived its usefulness, was sold last summer at auction by the government for the munificent sum of ten dollars, to be removed at buyer's expense. Many express regret at the necessity of the loss of this historic connecting link with the past, but its long-dilapidated condition rendered it an eye-sore and a block to improvement in the very heart of the city.

The history of this building and its various tenants would furnish an interesting chapter of reminiscences.

SOME PLANTATION MEMORIES.

BY J. M. LYDGATE.

MY FIRST boyish acquaintance with the sugar business began, I should say, in the fall of 1864. We had landed in Honolulu, our family and that of Alex. Young, from Vancouver Island, in April, 1864, and after a short stay in Honolulu moved to Hilo, where the firm of Lydgate and Young inaugurated a small ironworks to minister to the needs of the sugar plantations along the Hilo coast.

Immediately back of Hilo, on the Puueo side, was the Amanulu Plantation owned by Chinese. The mill was about half a mile from town, and naturally an inquiring boy was not long in finding it and in developing a good deal of interest in it.

It was, of course, a very primitive affair. The crusher was water driven, by means of a large overshot water-wheel, I should say about 20 feet in diameter, which rattled and groaned and splashed mightily, like some weary Hercules. The rollers were iron ones, about fifteen inches in diameter, by perhaps two and a half feet long. The cane was fed into the mill by hand, from the pile in the yard, over an apron; a very circumspect feed carefully delivered, lest the mill be choked and some accident happen. There was no fly-wheel to act as a reservoir of power, though the water-wheel itself served that purpose in a measure, and of course there was no provision for reversing, a very necessary expedient in such a mill.

From the mill a scanty stream of juice ran in an open spout to the boiling house, which stood by itself some little distance away. Here was installed the open train, a series of four or five pots, five or six feet in diameter, diminishing in size somewhat to the final one of the series. These pots were shaped somewhat like an opihī shell, or like the Chinese rice pots comparatively shallow and wide flaring, and were coupled, lip to lip, by bolts through an intervening flange, the whole

forming a range, set in brick walls, within which, and under the pots, a fierce fire was kept going. For this purpose the bagasse was insufficient and had to be reinforced by wood, and the liveliest job on the plantation was that of stoker, a poor unfortunate who was always being *pai-pai-d* or stirred up, in language as forcible as it was sometimes profane. The fierce fire kept these pots in a state of violent ebullition, while a Hawaiian attendant, nearly nude and sweating like a Turk, stood by with a long sweep to sweep off the scum from the top of the foaming juice. The vision through the open doorway into the dim interior with the dusky naked figures silhouetted against the great volumes of steam that rolled up into the dark recesses of the open rafters, and hung there to trickle back in large drops of sugar sweetened rain, would have been worthy the brush of a modern Rembrandt.

Meanwhile, as the density was somewhat increased by the rapid evaporation, the liquid was baled over into the next pot, where further cleaning and further evaporation went on, until finally, in the last pot it was boiled to "proof", the density necessary for graining. This point in the process was determined by the Chinese sugar boiler, who, with a long thin stick dipped into the pot, took out a proof, and trailed off a slender little stream into a large *opihi* shell full of water. And then taking the sample between thumb and finger, and holding up to the light he judged of its fitness for "strike". When that point was reached, the mass in this last pot was bailed out into a spout, that by the necessary connections, conveyed it away to the coolers, where it was allowed to remain for weeks, or until it had grained up from the bottom, leaving, however, a lake of molasses over the shallows of grained sugar below. In this lake many roaches, and an occasional mouse or even a rat came to an untimely end.

In due time the grained mass was dug out with spades, and shoveled into tubs, and slid along on skids to the centrifugals. The centrifugal, at least as a sugar-drying device, was a Hawaiian invention, the work of D. M. Weston of the Hono-

lulu Iron Works, of a few years before, and had, I fancy, been pretty generally adopted by the few mills on the islands. Those at Amaulu were very primitive affairs, small brass-screened tubs built onto the end of the upright shaft of a turbine water-wheel, operating in a pit under the floor. They probably wouldn't dry more than twenty-five pounds at a charge and as there were only two of them at Amaulu, the daily output was not very large.

The sugar resulting was packed in kegs, well-made containers, somewhat smaller than the present iron barrels used for cement. These came to the plantation in the knock-down condition of shooks and heads and were set up on the place. This involved a cooper for every mill, generally a white man, who counted as an important factor of the enterprise, along with the engineer and the sugar-boiler. Into these kegs was put, as I remember it, some 125 lbs. of sugar, packed with a heavy ohia pounder, then headed up and stenciled with the plantation mark, grade and weight.

For every purpose, except perhaps refining, this keg package was very much superior to our modern bag package. It was cleaner, more secure against waste and wet, against rats and pilfering hands, and against all the wear and tear of transportation. The one thing against the keg was its cost; that and perhaps its inconvenience in transportation. Of course those were the days when all our sugar went into the open market, and must be sold as grocery grades, and the looks of it went a long way; anything like mussiness, or any suggestion of floor sweepings was fatal.

The daily output was finally carted to the landing storehouse, whence, from time to time, it was shipped to Honolulu by schooner.

The transportation of the cane to the mill was a problem, even in those old days of small areas and limited crops. The bullock cart was the first, but for the Hilo district of much rain and hopeless roads, a most inadequate solution.

Attempts were made at rude tramways with ohia scantling rails, on which rude cars were hauled by draught animals. And one interesting experiment was made with a wind-driven railway. The cars were fitted out with great sails, which were hoisted when the wind was fair.

After a short residence in Hilo we moved to Onomea, the old Onomea, and lived there for some time; and there I came to know of practical plantation life as a small boy may learn.

Onomea—owned in those days by S. L. Austin,—was one of the most advanced and best equipped plantations on the islands at that time. The crushing plant, water driven like all the rest, was somewhat larger and heavier than most of the others, and there was a short cane carrier. The water-wheel was more powerful and the supply of water more generous so that more and better work could be done. It stood detached on a little rocky knoll, at the foot of which was the boiling house. In addition to the usual open train, there was a steam driven Wetzell pan, a sort of revolving washing machine, which perpetually stirred the strike at the same time that it evaporated it. I believe it was never much of a success and was finally discarded in favor of the vacuum pan, which had not been introduced as yet, though it came into use very soon after, or it may have been about that time, the pioneer pan on the islands being that used by Kaupakuea,—now Pepeekeo—a neighboring plantation.

As has always been the case more or less, the boiling capacity was behind the crushing, so that there was always overtime in that department, and during the busy season there was a night shift, with a night sugar boiler to get away with the surplus juice that the mill had sent down during the day. When we were at Onomea J. S. Emerson, then a young man working his way through college, was night sugar boiler. He occupied a small single-roomed cottage at the rear of the Austin Home, the most striking feature of which was a bed with a fierce red blanket cover. Some good friends of mine

recommended me to his kindly interest, and prevailed on him to tutor me in the rudiments of Latin, which I had just begun. By some means which I do not now understand, he invested declensions and conjugations with a charm that they never had before, or for that matter never since. By way of reward for a well-finished task he would give me a graphic and original presentation of some old classic story, which filled my heart with joy, and awakened great enthusiasm and admiration for my teacher. It was a real misfortune for me when the season came to an end and Emerson moved away. Had he remained and continued my instruction, who knows, I might have made a classical scholar.

With the poor varieties of cane, the defective cultivation and the still more defective milling the output per acre was woefully small. From the moment the cane entered the mill until it emerged as sugar, it was one continuous line of leaks and losses, through defective crushing, leakage, invert sugar, and high sugar content of waste molasses, so that I fancy not more than 50% of the available sugar was realized. Undoubtedly fortunes were fed into the furnaces or run to sea in those good old days; and that those lost fortunes were moderate rather than colossal is due to the fact that after all the amount of material was comparatively small.

Two or three tons an acre was considered a very good crop. I remember when, some years later, Laupahoehoe harvested 1,200 tons from 200 acres it was considered a phenomenal crop, too phenomenal to be credible. Those Hilo places turned out a few hundred tons each, and we thought that the limit of all endeavor in the sugar business had been reached when we heard that Pioneer, at Lahaina, had reached the unprecedented figure of 1,000 tons.

When we went to Onomea the first experimental flumes for the transportation of cane were being installed, and I remember distinctly the unfinished flume ending in an open field short of the mill, and how we boys found great joy in flume riding therein, seated on a bunch of cane tops or a

section of fern stump, down the grades where the water ran white, and over the end into the little pond which the water had dug out for itself. Locally, at least, we must have been the originators and inventors of this sport which afterwards grew to considerable proportions.

The fluming idea was not original with the sugar business but was an adaptation from the lumbering regions of the north-west coast, where it had been used successfully for the transportation of logs and rough timber. As adapted to plantation use, the flume was a flaring box flume, twelve inches on the bottom and the same on the sides. It was a permanent stationary flume, to which the cane had to be carted or carried, thus leaving a very considerable balance of the problem still to be met. The portable V flume, laid on the ground, with simple driven stakes to support it, without nails or bolts, so that it could be picked up in lengths and moved up to the cutting face of the field, was the adaptation later on of my father at Laupahoehoe, an invaluable method which greatly enhanced the efficiency and reduced the cost of fluming.

This method of transportation for cane at once became the standard for the Hilo District, for which it was specially fitted by virtue of an abundant supply of water, and a pretty uniform slope of the fields toward the mill, which was built at the lowest available spot on the estate. From this point of view the earliest mills were wrongly located, on the basis of a central position rather than the lowest. The consequence was that the lower lands were left idle or were cultivated at greater expense.

The variety of cane most commonly cultivated was ko kea—white cane—a Hawaiian variety, a fine soft cane, which fell an easy prey to rats and borer, of rather low sugar content and of few sticks to the hill. The so-called Lahaina cane came in later. The Hawaiian red canes, much cultivated on Maui, were not grown I think in Hilo.

Much of the land, even in my boyhood days, had a worn-out aspect, at least in the fields much cultivated, and the stand

of cane on them was very poor compared with the crops on those same lands today. Such a thing as fertilizer was unknown, and doubtless the lands were quickly depleted, especially in that region of large rainfall and heavy leaching.

Breaking in new land, in those primitive days, was the bugbear of the sugar business. To clear a few acres a year of guava, puhala, amau fern, uluhi, etc., burn off the refuse, and then plow the virgin soil, in even the most superficial way was a great undertaking.

Those were the days of shipped labor. As the name would suggest this way of handling labor was taken over from nautical experience, many if not most of the plantation men of that day being graduates from the sea. To "ship" was to enter into a formal contract for a stipulated time, generally a term of years, to do any kind of plantation work, so many hours a day. The incentive to this indenture on the part of the laborer, was the advance, the prepayment of a considerable portion of his wages in advance, which of course must be worked out as part of his term. The ordinary laborer drew all the advance he could get, and promptly squandered it; then he had to work out a dead horse, which of course, he was more or less reluctant to do. He schemed every way he could to do as little work as possible, and to get as much credit as possible, which meant, naturally, that he became more and more hopelessly involved. When at length he had reached the end of his tether, in the way of credit, his next move was to run away to some new field, where he could ship again, get a new advance, and work the whole scheme over again. Or, as a less dangerous alternative, when his needs became very pressing, he would endeavor to secure a fresh advance by shipping over again where he was for a new term on top of the balance of the old; and he would do this with the utmost equanimity, as often as the master would consent, until he become so hopelessly involved that nothing but death could be expected to set him free.

As I say, he was reluctant to do any more work than he had to, and took advantage of every possible excuse or justification for laying off. He was always ready to malingering or plead illness, and the number of near relatives that could die conveniently, and need burial at his hands, was phenomenal.

Whenever he failed to put in an appearance, he was liable to arrest and prosecution on the charge of *haalele hana*—quitting work—and if convicted was fined and remanded back to work again. Naturally he was not in any condition, or any mood to pay his fine, so his master had to pay it for him, and charge it up to his account, to be worked out, along with the rest of his term. The lower courts were full of such cases in those days, and embryo lawyers grew fat on them.

In order to check this *haalele hana* evil, a law was finally passed which required the laborer to put in two days of time for every one he lost in that way, which, of course, was added to the term of the contract, which finally snowed him in more hopelessly than ever.

Needless to say, it was a bad system,—for both parties. It was bad for the laborer because it discouraged and disheartened him, and tended to develop prodigal and careless habits, and it was bad for the master because it tended to foster an inefficient and unreliable type of labor. The system expired automatically with annexation.

The quarters in which the labor was domiciled made up a small grass-house village, generally not far from the mill. These houses were often built by the people themselves, with bamboos mainly for framework, and dried cane leaves for covering, in the form of thatch. When new, at any rate, these houses were delightfully clean, cool, fragrant, and well ventilated. Naturally they were not very durable, and fell an easy prey to decay and to fire. We lived in such a house at Onomea, though with board floors and glazed windows. We found it very comfortable.

My recollection is that the laborers were fed by the plantation; at any rate the plantation guaranteed them *pai-ai*, pound-

ed taro, poi in the rough, at fixed reasonable prices. Probably this was necessary to a fair turn-out for work. D. Kamai, a capable Hawaiian of a good deal of energy and enterprise, had a contract with the plantation to supply pai-ai at one cent a pound. He raised the taro on the outskirts of the plantation, steamed it in great inus or ovens, and ground it into pai-ai by means of a horse-power mill, a primitive affair somewhat after the nature of a meat grinder, the whole taro going in at one end and a steady stream of pasty pai-ai coming out at the other. This was then bundled up skilfully in ti leaves, in oblong bundles of 50 lbs. each. Once a week these bundles were distributed, by pack train throughout the village, and doubtless charged up in their accounts. Salt salmon was dealt out as required from the plantation store, and also charged up. These articles constituted the regular bill of fare, as I remember it, but were eked out from time to time by hard tack as a luxury. Fresh beef was also a luxury.

I can hardly leave Onomea without a word of appreciative comment on the Austins and the Austin home there. A man of more than ordinary education and intelligence, for many years a judge of the circuit court, he was naturally in the fore front of the sugar business in those days in enterprise and initiative, and was always on the lookout for better things. He was besides a broad-minded man with generous instincts that prompted him to lend a hand in every matter of public interest or welfare.

The Austin home, presided over by his attractive and cultured wife, a missionary daughter, one of the choicest of the stock, was widely famed for generous hospitality, and was the Mecca of many a merry surprise party, many a happy week-end, and many a weary traveler making a horse-back tour of the island. Such homes and such hospitality gave a peculiar charm to the simple life of those bygone days that can never be forgotten by those who knew them.

KONA CONDITIONS.

BY ALBERT S. BAKER, M.A., M.D., B.D.

President of The Kona Improvement Club.

SINCE some who read this have never been to Kona, let me say that the Kona district of Hawaii is about sixty miles long, with five regular steamer landings, seven postoffices, and twelve public schools. At our "civil center", at the boundary between North and South Kona and at an elevation of sixteen hundred and fifty feet, is our largest school (eight rooms), a Buddhist temple with a school attached, an equally large independent Japanese school, an English-speaking Congregational church, a branch of the First Bank of Hilo, with safety deposit boxes in its vault, the postoffice of Kealahou, a County Hospital, a lawyer's office, a few small stores, and a hall. Within a mile either way is a Hawaiian church, an Episcopal church, a Catholic church, the tax assessor's office, the Food Commissioner, and the South Kona Government physician.

Kona is beautiful for quiet ocean, gentle breezes, and diversified vegetation. About anything that grows anywhere else in Hawaii grows also in Kona. The whole aspect of the country is thus unique. We have one small sugar plantation, but the cane is scattered in patches over a dozen miles, being sent down on wires to the railway which hauls it to the mill above Kailua. We have a large acreage of coffee, but even this is so scattered that there is no monotony in vegetation. Forest and fruit tree, with open vistas extending many miles, give a most diversified landscape. We have no grand gulches or running streams, but Hualalai, our double-peaked Kona mountain, is beautiful, and the long slope of Mauna Loa is most impressive. Few of us live at the warm sea-level, but where we do live the climate is ideal. There is not so much difference in temperature between normal summers and win-

ters in the daytime, because summer is our rainy sason and winter the dry. The summer days, which would otherwise be warm, are cloudy, and the winter days are full of sun. But nights are much cooler in the winter, though even in the summer, on the upper road, we never sleep without a blanket. Come to Kona in the summer if you cannot come at any other time, but do not forget that the ideal days are in the winter.

The historic interest of Kona is great, with most things accessible to the automobile or within easy walking distance. We are soon to have a new road from Napoopoo to the City of Refuge at Honaunau, which vies in interest with the relics of Capt. Cook about Kealakekua Bay. Kailua, our chief port, has the Third Circuit Court House, and its historic interest centers about Kamehameha the Great and the first landing of the missionaries. Keauhou concerns Kamehameha the Third, and Kahaluu the priesthood of Hewahewa.

Kona is well supplied with churches and chapels, both Protestant and Catholic, while there are also several Mormon churches, Buddhist temples, and Shinto shrines. Kona has seven Independent Japanese schools and one Korean school. H. Hackfeld & Co. are about to replace their present store in Kalakaua's old palace at Kailua with a modern concrete structure, and they also have a good store and lumber-yard at Napoopoo, our second important port. The Capt. Cook Coffee Co. have also recently put in a good modern store near the center on the upper road, with a first-class garage, ice-making plant, etc. There is a choice of roads down from above to most of our ports, and some of them are decidedly more choice than others. The South Kona roads are in much better condition than the North, though all will be good when we spend the \$50,000. available for each district when the bonds are sold. The Bishop Estate has built five and a fifth miles of road mauka from Keei, to open up new land, and are to build three miles of road for the same purpose at Keauhou.

Coffee forms the chief industry of Kona, with some 5,000 acres of trees; 4,600 of these acres are said to be cultivated

by Japanese, representing over a thousand families and over three thousand individuals. It may be of interest to know that an acre of coffee *has* yielded as high as 120 bags of cherry, or 24 hundred-pound bags of dry coffee. An extreme value of \$300. an acre *has* been paid for the best coffee land, or a lease price of \$30. a year, though this is considered too high. The crop this year is about the average. The best year produced between 45,000 and 50,000 bags.

Cattle stand next in Kona. There are some ten fair-sized ranches, the largest having nearly 5,000 cattle and the smallest some 300. The largest ranch is over twice as large as the next one, and the ten ranches total over 14,000 cattle. At one of these ranches a Japanese went to buy a horse. He asked a lot of questions, as we all used to do in the old days when we bought horses, and he kept it up until in exasperation his formant said, "What is the matter with you, to ask so many questions?" "I think more better ask plenty questions," was the reply, "or by-and-by when I get horse a bee will bite me." It takes a little time for us to see that he was trying to say that he was afraid he might "get stung!"

Sugar stands third among our industries, and the Kona Development Co. has made good along with all other sugar companies in recent years. It harvested 4,558 tons of sugar this year, from 1,553 acres, all but sixty-five of which were cultivated under contract. There will be 965 acres next year, all but 325 being cultivated under contract. This makes a total of 2,518 acres, or only half the number of acres devoted to coffee. This company is owned and managed by Japanese. One of Mr. Eben Low's steamers, which makes weekly trips to the Kona ports for freight, takes this sugar.

Kona oranges have as good a name as Kona coffee, and a pity it is that there are not more of them. A certain amount of tobacco is grown (eighty acres), and some koa lumber gotten out, but though various things have been tried nothing else is cultivated on a large scale. Of course a certain amount

of fruit, vegetables, pigs, and poultry are shipped to Honolulu, but no great business is done.

Our Kona Improvement Club has permanent road and school committees, and now a food committee, which has supplied seed at cost where it could not be obtained in the stores. The Club takes an interest in anything which makes for the betterment of the district in any line, from keeping cattle off the road (a perennial subject), to the management of the hospital and the eradicating of the fruit-fly. If you come to Kona when we have a meeting, visit us.

HIBISCUS DEVELOPMENT IN HAWAII.

BY GERRIT P. WILDER.

HAWAII may truly be regarded as the land of the Hibiscus flower, for nowhere else in the world can there be found such numbers and varieties of this beautiful flowering plant.

The Hibiscus is indigenous to these Islands, there being several distinct native species. These, together with a number of introduced species, formed the nucleus from which the marvelous variety of new creations have been developed.

Hibiscus arnothianus, or Kokio keokeo, is the native white species, of which there are several distinct varieties such as the Hibiscus Waimeae of Kauai and the Molokai pure white. Practically all of the native whites are fertile and when artificially pollinated cross readily with many other varieties. The reason, however, why there have occurred no natural hybrids between the native whites and native reds is because the blossoms of the white, although very fragrant and attractive to insects, open late in the day, and the pollen sacks burst too late to become crossed with the red species which blooms early in the day and its pollen has become dry.

The indigenous red hibiscus, Kokio ula, though more rare than is the native white, occurs on several of the Islands, and is an interesting flower. The Hibiscus brackenridgei is the

native yellow, with which, so far as I am aware, no crosses have ever been made. *Hibiscus Youngianus*, a species found in wet and swampy places, has a lavender-colored flower, but not of much importance.

The exact date of the introduction of hibiscus from foreign lands is not definite. The earliest mention of the flower occurs in a letter written in 1854 by one of our early missionaries to a relative in New Bedford. The writer speaks enthusiastically of a beautiful new red flower, then blooming in one of the Honolulu gardens; a flower from China and called the "Shoe Black flower". This was, as we know, the *Hibiscus Rosa Sinensis*, our common red hedge variety, which has been of such value in our gardens ever since. It does not seed, but is propagated from cuttings.

Since the introduction of the common red, there have been a number of new varieties brought from foreign lands, among them the *Hibiscus schizopetalus*, or Coral Hibiscus, which has been constantly used as the male parent in crosses. A white variety introduced from Fiji crosses readily. *Hibiscus sabdariffa*, known as Roselle, is cultivated not as an ornamental plant, but because of its calyx which is very thick and fleshy, and which makes a delicious conserve.

Hibiscus mutabilis is an interesting flower which looks in the morning like a great double white hibiscus, and in the afternoon turns to a rose pink. So far as is known, no crosses of this with the native species have been made.

Mr. Walter M. Giffard was the first in Hawaii to create new forms of the hibiscus by means of artificial cross fertilization, and a number of very beautiful flowers are the immediate result of his efforts. The more remote result of his work is the great impetus given in the direction of hibiscus culture; for a number of enthusiasts have followed his lead and with marked success.

Similar methods are employed in these crossings as are resorted to in the case of other flowers. The flower of the plant chosen as the female parent must be carefully guarded against

self or accidental pollination, and for this reason it should be emasculated by cutting away the petals while in bud. It is then covered with a bag until it has been artificially pollinated, after which it is kept covered until the stigmas can no longer take up any air-borne or insect-borne pollen.

The seeds ripen in from forty to fifty days. They are gathered, dried and planted, and will mature and flower in about seven to ten months. As naturally there occurs great diversity in both form and coloring, even in seedlings from the same pod, one should resort to grafting or budding in order to reproduce absolutely a particular variety. Grafting is not only the surest, but the quickest method. Select a sturdy plant, graft onto it and the flowers will bloom in five months.

One of the most valuable qualities that has been developed in the hybrid varieties is the lasting quality of the flowers. Whereas formerly the hibiscus flower was of little use for decorative purposes because it closed so early in the afternoon, latterly, by careful observation and selection, the lasting quality has been more and more developed until now we have flowers that are quite fresh after forty-eight hours.

The Hibiscus Society of Hawaii was formed in 1911, and in that same year the first Exhibition was held in the rooms of the Promotion Committee. Some 250 varieties of blossoms were shown. In 1912 there were 600 varieties exhibited at the Y. M. C. A. In 1914 a magnificent show of blossoms, scientifically arranged for competition, was held at the Armory, and was one of the great attractions of the Carnival week, for both residents and tourists alike, as was also the exhibit of 1917 at the Pan-Pacific pavilion, at which not less than 2,000 varieties were shown, to the surprise and delight of all visitants.

Enthusiasm in the cultivation of the hibiscus, and the creating of new forms, is thus shown to be ever increasing. The Outdoor Circle, which has done such valuable work in beautifying Honolulu, has chosen the hibiscus as its flower and

it is safe to state that it would be difficult to find a garden, large or small, in Honolulu, that has not its lovely hibiscus blooms.

CHILD WELFARE MOVEMENT.

HONOLULU'S BABY WEEK.

BY JAS. A. RATH.

AS "Baby Week" had been conducted successfully in many of the mainland cities, Honolulu was asked to organize a similar child welfare movement. Brief mention of its inauguration was given in last ANNUAL.

In the hope of arousing interest for such a step, during the week of March 22th, 1916, an educational campaign was carried on through the papers of the city, the foreign language papers doing their share as well as the English. Such splendid articles had been written thereon by several women that keen interest was shown by the public, and an early date for "Baby Week" in Honolulu was set—that of April 24th—thus giving the various committees a little over a month for preparation.

All the city became aroused—"Baby Week" was talked of on the streets, trolleys, and in the different local organizations, as effort had been made to have every organization help in some way.

Palama Settlement was chosen as the most suitable location for the enterprise, on account of its large gymnasium which could be used for the exhibits: the club rooms on the first floor which could be used for the examinations of the babies, and for its well-equipped dental and medical departments.

The daily programs were held from 1 till 5:30 p. m. and in the evenings from 7 till 9 p. m. In the afternoons, practical demonstrations on bathing, feeding and caring for the baby were conducted by graduate nurses, and lectures by some of the best local physicians on various subjects. Lectures were

given in Chinese and Japanese also, and interpreters for the other languages were present every day so that all the mothers could hear the lecture in their own mother tongue.

In the evenings, lectures and slides were given under the direction of the Anti-Tuberculosis Bureau. These lectures were very well attended, showing the interest of the mothers and the "little mothers" who came.

The average daily attendance of visitors during the week was over 700.

Promptly at one o'clock began the examination of the babies, which was one of the greatest and most interesting spectacles Honolulu has ever seen. From the time the first baby was brought in until the close of the afternoon, the examiners were kept busy—babies of all kinds and nationalities in their best clothes and brightest colors, the Japanese and Chinese being the most gorgeous in this respect.

Nearly 500 babies were brought in for examination, but only 388 had a complete score card. There were 203 boy and 185 girl babies. The nationalities represented were American, British, Portuguese, Russian, Chinese, Filipino, Irish, Spanish, Norwegian, Porto Rican, Swede, French, German, Korean, Negro and two pure Hawaiian babies, only 33 babies of mixed Hawaiian blood. There were 53 different blood mixtures in all. The average score was 90%. Two American babies gained the 100% record. The lowest score was 71%, held by a Japanese girl. The score cards used were those arranged by the American Medical Association.

The examinations were conducted by the able assistance of some of the best local physicians and dentists and graduate nurses of the city. Too much cannot be said in praise of this volunteer work during the entire strenuous week.

In the main gymnasium hall were exhibits giving instructions for the different phases of a baby's life. The booths were for — Eye, Ear, Nose and Throat; Play; Feeding and Cleanliness; Clothing; Milk Dairy; Teeth; Home-made Furniture; Tenements and Cottages; and Tuberculosis.

The Eye, Ear, Nose and Throat Booth was well equipped with drawings showing the results of the lack of care of each of these organs, and charts giving necessary and helpful advice. At one side was a child's bed well shielded from sun and artificial light showing how a baby's eyes must be protected while asleep.

In the Play Booth were many simple home-made playthings and very inexpensive toys; also a chart containing articles that are very injurious for small children such as scissors, pencils, knives, etc. The most attractive feature of this booth was a miniature Playground with well-planned apparatus.

The Booth for the Feeding and Cleanliness of the babies held the daily demonstrations of bathing and feeding the baby from birth till six years of age. In the booth were articles that are the best for use—an especial effort being made not to show any article that was in any way unsanitary or injurious, for fear that some foreign mother might misinterpret the object of having the article on exhibition. Different kinds of simple foods were in evidence also.

The Clothing Booth had layettes for a Japanese and Chinese baby as well as the clothes ordinarily used. Two completely equipped sleeping baskets were on exhibition, made of the simplest and most serviceable material, with a price list. These were later given as prizes to the mothers of the poorest districts whose babies made the highest score—one baby was Chinese, the other Portuguese. Garments from bonnets to well-shaped shoes were on display for all the ages up to six years.

The Dairy booth gave samples of milk daily to any visitor showing that well-fed and cleanly kept cows produce milk that, when cared for, will remain sweet for many days. The best and most sanitary utensils used for containing the milk were also shown, and charts and pictures showing sanitary and well-kept dairies, as compared with the opposite kind. Mothers were told how to take care of the milk that was left at their door each day to keep it in the best condition for the children.

The Dental booth contained a chart that particularly attracted the Orientals. It showed the growth and development of the teeth in the gums from birth thru the coming of the wisdom teeth, and very old age when the teeth fall out. Also charts of "Don'ts" and "Do's" were hung on the walls.

In the booth for the Home-made Furniture, which was made by a woman, were a fireless cooker, ice box, child's chair and table, bed, shelves, and a table with a towel rack. All of the articles were made from packing boxes. This booth attracted the male member of the family especially.

Plans of some very unsanitary tenements and well-made simple cottages were on exhibition in the Tenement and Cottage Booth. It showed the public how very unhealthy the tenements are, and also how impossible it seems to be for the tenants to receive any better conditions from the owner. Cottages are proving the most desirable for the poorer classes, and it is only because of extreme necessity that they live in the tenements.

The Tuberculosis Booth was in charge of the Anti-Tuberculosis Bureau of Honolulu, and contained many significant charts of the cause and prevention of the dread disease. Also two or three mechanical devices were shown proving how easily the disease is transmitted through ignorance of the members of the family, and what terrible disaster a common fly can bring. The booth also contained charts explaining the values of different foods; and gave a demonstration of how an unsanitary dark room can be easily converted to a very desirable living-room.

Miscellaneous Charts and large maps were placed in prominence to show the Vital Statistics of Honolulu for a year. These maps showed clearly that the death rate was highest in the tenement sections of the city. At a side table literature on "The Care of the Baby" was distributed, printed in the different languages that all might read the articles.

The local firms of the city did their part in having window displays of their specialties for the good of the baby.

Many also loaned much material for the use of the exhibits. Free transportation by the Rapid Transit Company was given to the mothers from different sections of the city on especial days.

"Baby Week" was held in Honolulu for the purpose of establishing a Permanent Welfare Station somewhere in the city, "where babies can be watched more carefully and scientifically and mothers be educated that the death rate of infants be lessened." Such keen interest in the subject was aroused during the week that it has been possible to have such a station. It is held in one of the Palama Settlement buildings. A veranda of this cottage serves as a cool waiting-room for the mothers. Inside is the main office for the nurse in charge. Here is literature, containing instructions for the care of the mother and baby, which is distributed freely. On a table is a layette, and paraphernalia needed for a bottle or breast-fed baby. The other rooms of this station are—a rest room for the baby; an examination room and a small laboratory.

A physician comes in the afternoons daily to make the examinations or to give needed advice for any baby and mother who desire the same. The Welfare Nurse also visits the new-born babies in the districts and supervises the care of the mother before and after childbirth.

PALAMA SETTLEMENT

Started as Palama Chapel June 1, 1896; Incorporated July 21, 1910.

President.....J. R. Galt

Vice-President.....W. F. Dillingham

Secretary.....G. P. Denison

Trustees—Richard Ivers, John Waterhouse, W. R. Castle, Dr.

W. D. Baldwin, F. J. Lowrey, John A. Hughes, G. H.

Angus, Geo. R. Carter, A. L. Castle, Geo. N. Wilcox,

Dr. O. E. Wall.

Head Worker.....J. A. Rath

THE PASSING OF KAMEHAMEHA I.

BY W. D. WESTERVELT.

IN THE several Hawaiian papers of about fifty years ago, are accounts of the death of the great king Kamehameha I. The united story is well worthy of preservation. He was born at Kokoiki, Kohala, Hawaii, in the year 1736. He died at Ka-maka-honu, Kailua, May 8, 1819, and was therefore 83 years of age when death came.

"Fourteen years of fighting united his kingdom. Twenty-three years were passed in directing its affairs. Seven years he dwelt on Hawaii in the time known as *Kaniaukani* (the name given to his return to Hawaii). Then he died at Kamakahonu, Kailua, Hawaii."

"As a youth he was skillful in all games. His body was well filled out and muscular, and he had very broad shoulders. His face was thick and his ears large. He was over six feet tall. He had a very strong will. He was not obstinate, but persuasive.

Kamakau, a native writer, thus sums up Kamehameha's character: "He had great self-control, and his inward feeling was not always shown in his face. He was a father for the fatherless, life for the old men and women, a help for the distressed, a farmer and a fisherman for the hungry, a kapa maker for the poor, and he did not collect taxes from the bodies of men, the animals, the houses, the clothing or the food. Up to the time of his death his body was not weak with old age, his eyes were not blind, or his head bent over; only by his white hair was he known as an old man."

He was ill a long time at Kailua. Kalanimoku and other chiefs left Oahu to go to him, leaving Boki in charge on Oahu. Some of these chiefs were sorcerer or medicine priests. Kalanimoku seems to have been one of the highest and most carefully taught of these priest-chiefs.

When they saw their king they knew that his illness was beyond their reach and that no medicine could heal him, so they agreed to tell him that he must look to his gods for life

or death. The high priest, probably Hewahewa, said to him: "Perhaps you had better build a house for your gods. You may live." The chiefs seconded the word of the priest and a heiau (temple) was either built or repaired.

Kukailimoku was the god for whom this heiau was prepared. He was Kamehameha's chief god and was consulted in all times of war or great trouble. He was made of wicker-work in the shape of a head, covered with the most costly and most beautiful golden and red feathers. It was said that sometimes when he was consulted the feathers would rustle and rise up, showing his anger against Kamehameha's enemies and his prophecy of victory over them. This god is now among the most highly prized objects in the Bishop Museum, Honolulu. The heiau for this god was made of cut or hewn ohia trees and in the evening a tabu was announced. Then the priest asked Kamehameha for a human sacrifice, saying, "A man for your god that you may live."

When the people saw this house of ohia wood built, they were greatly frightened, thinking that men would be caught and killed and laid on the altar. In their fear they fled through the evening shadows and concealed themselves in the rough a-a lava and in the forests. "By morning, only a few men were left with the chiefs."

They waited in their hiding places, for the sacrifice of some one to be finished and the tabu lifted. When the body should be placed on the altar they could safely return.

Kamehameha, however, did not permit any such sacrifice. He said to the chiefs and priests, according to one statement, "The man belongs to the chief," or according to another account, "The man is tabu for my chief," meaning that he forbade any human sacrifices and set apart the people for his son Liholiho. They were all "tabu" to any other person.

The priests prayed earnestly before Kukailimoku and watched for the least motion of his feathers, but there was no response. The signs from the god were studied in the clouds.

The signs which would show that it was willing to grant the prayers were these: The feathers would stand out like hair full of lightning, and tremble like a flag in the breeze. He also would leap from his sacred place and fall on a man, perhaps on shoulders or head, whatever place he wished. These were signs of favor and peace. If there were no signs, the sacrifice and worship were of no use; the heart of the god was without pity.

The king became more seriously ill and sent Liholiho to the temple, saying, "Go and pray to the god. I cannot. I am too weak." But the illness rapidly increased.

The chiefs heard that there was a powerful priest (kahuna mana) who could bring life to the sick. Pua and Kapo were his gods. The chiefs knew the power of that man and built two houses for the gods. Kamehameha knew the priests of these gods for they had healed him before. If he could not go to the houses then the gods were to be carried to his sleeping house. These gods were Kalaipahoa (or Pua, both names for one god) and Kapo. (Alae was another name for Kapo.) If the gods were taken, the sick one might get well. But the favor of these gods could not be secured. The illness increased. Three days passed while he was lying in that place seeking rest and healing, but he was no better; he grew weaker. Then the chiefs took him out of that place and returned him to his own rest house. That night they carried him to the hale mua for food. He took only a mouthful and a glass of water. The chief said, "You give us directions," but he did not reply and carried him back to his rest house and laid him down until about ten o'clock. Then they carried him again to the hale mua but he only took a mouthful of food and a mouthful of water. This was done frequently on account of the tabu forbidding men to eat in the sleeping house where the women were.

Then one of his brothers, Kaikioewa, said, "Here are all of us, your brethren, your chiefs and your foreigners. You must leave words for us, your chiefs, and your relations."

He said, "Why?"

Kaikioewa said, "I *hua* na makou," meaning "that there may be fruit or thought for us to preserve."

Then Kamehameha said, "Continue to move on in my right course——" He did not finish his sentence and his last words were lost.

Then John Young took him by the neck and bent over to kiss him and Hoapili took his ear and whispered that he would care for the body when death came.

Then they returned to the rest house. At midnight they carried him again to the eating house. His head was in the doorway and his body lay in the sleeping house. He began to breathe hard, so they carried him back and he lay in the rest house until two o'clock in the morning, when his spirit flew away from the body and the breath departed.

This was the night of Hoku according to the ancient method of reckoning. Leleiohoku, the child of a daughter of Kamehameha, was born in and named after this night.

When Kamehameha was dead, Kalanimoku called all the people outside. Two old men sat down inside and would not go. Kalanimoku urged them to go and one went out. The other remained. He had been a caretaker of Kamehameha in his youth. Kalanimoku saw that this was the great favorite of the king and let him remain.

Then the chiefs outside consulted about the right disposal of the dead body. One chief arose and said, "This is my thought. We must eat this body."

Then Kaahumanu said with a feeble voice, "The body perhaps does not belong to us but to the king (Liholiho). The breath which belonged to us has passed away. This body belongs to the chief himself."

Hoapili said to the chiefess, "You have no kuleana in this body because my chief, Liholiho, and I are the ones who have the care of this body. So it was commanded."

When the consultation was over, the dead body was carried to the temple for the priestly ceremonies. The ceremo-

nial pig was cooked and laid on the platform before the dead body (as an act of worship) to change Kamehameha into a god (an aumakua).

Then the priest said to the chiefs, "I tell you the law of human sacrifice (or self-offering) the *moepuu*. If a sacrifice of men is made in the temple one man can (*moe iho*) kill himself, but if the offering is made outside four men can be the *moe-puu*. If the body is taken near the *lua* ten men can die as the *moe-puu*, but if the body has come in the *lua* fifteen men can die. In the morning of that tabu night if men die there should be forty. Then the priestly ceremonies for the body of the dead king would be complete." Hewahewa was the high priest who announced this death ceremony.

After telling about the customs, Hewahewa turned to the young king and asked, "Where shall Liholiho stay? There are two places proper for him to retire to, Kau and Kohala, for it is not right for him to remain in Kona while it is ceremonially defiled by the dead body."

The chiefs decided that Kohala was the best place for the new king, a place full of his own people. The priest said, "This is the right place. He must not stay in Kona for it is defiled by this death."

Then the high priest took a pig in his hand and made it clean as a sacrifice for the heir of the kingdom to remove the defilement of the dead body and purify the heir so that he could leave that place, returning when the district was purified.

In the early morning, Liholiho went with his own men and some chiefs to Kohala. When he had sailed away, the chiefs and people acted like crazy people and wild beasts. Very evil was the way in which they showed their love for the dead.

The day was opening in the red light of the morning. The body was carried to the burial house. The people saw it and were wailing. One man crazed with sorrow came to the chiefs, leaped upon them and tried to leap upon the body,

expecting the chiefs to strike him dead. He flew upon the chiefs again and again and was driven away. He could not find anyone to kill him. Kalanimoku also tried to find moe-puu, that "hill of the death sleep" and was pushed away by Hookio. The dead king's word was remembered and no one was slain.

The sorcerer-priests began their prayers about Kamehameha as if his death had been produced by sorcery. It was not in the thought of the people that he had died of sickness and old age. While these priests were making their place for prayer and marking it with kapa, a high chief, Keeaumoku, a brother of Kaahumanu, crazy with rum, tore down their kapa.

Then the priests charged the death of the king upon Kaahumanu and her family. The people treated them evilly.

When the days of purification were ended in the heiau places established for Kamehameha, when the platform for the body was covered with kapa and a girdle of leaves had been placed around the god, then the high priest finished his ceremonies within the temple house where he had been praying to the god that the spirit of the dead might be given life and welcomed to the company of the good spirits to dwell with Wakea, and not be sent to dwell with Milu, the king of the underworld. He was continually burdened with hope of getting life for the spirit. This prayer was called *lupa-lupa*.

If a spirit has no rightful place among the gods, then there is a prayer with daily sacrifice. There is also the prayer of quiet distress when the one praying waits quietly on the gods. There are many forms of prayer concerning the path to the gods. Different ideas prevailed about the method of changing a spirit into an aumakua. Sometimes it was permitted to go to its ancestors and sometimes to the beautiful land where spirits dwell.

When these ceremonies were finished, Hoapili prepared to obey the command given him by Kamehameha to take care of his body and thoroughly secrete it.

The children and grandchildren of Keaweheulu had the natural right to care for the body of Kamehameha because they controlled the burial places of Kiolakaa and Waiohinu at Kau. But Kamehameha distrusted them, because when his own father, Keoua, died, they took the bones to hide in the pali of Kaawaloa, and furthermore pointed out the place to other people. He thought they would not be true to his bones, therefore he gave them to Hoapili to hide and not reveal.

About midnight, when the people were sleeping and no one passing along the paths, and the lava field of Puuokaloa lay in sacred silence, Hoapili sent his man Hoolulu to get the tied-up bundle of the body of Kamehameha and take it to Kaloko, Kekaha. He got it, laid it on his back, carried a gun in his hand and went out on the a-a along the path of Puuokaloa. He saw a stone which he thought was a man and fired his gun at it. The sound was heard at Kailua and Honokohau, and the chiefs thought that the body of Kamehameha had been taken by some man.

Early in the morning, Hoapili and Keopuolani went on a boat to Kaloko and met the trusted servant who was watching the pit where the body was concealed.

“Only the stars of the heavens know Kamehameha.”

It was said that the bodies of the high chiefs Kameiamoku and Kamanawa and the bodies of Kalola Pupuka (w), the child of Honokawailani and Kahekili Nui Ahumanu, had been concealed in this same secret pit.

Sometimes the bones of a chief were dishonored, hence concealment was considered necessary.

Kamehameha had greatly desired Kaawaloa as a burial land. He asked Keaweheulu to sell it, but he refused.

David Malo says: “Hoolulu, a chief and confidential friend of Kamehameha, took the bones after the flesh was removed and burned, and secreted them in a Kona cave. Returning in the morning, he met two natives. “Did you see anyone pass in the night?” They replied in the negative. The chief was ready to kill them if they had seen him.

Years later Kamehameha III. persuaded Hoolulu to show him the cave. They started, but a crowd followed them and Hoolulu refused to go on. Never afterward would he listen.

For ten days Liholiho remained in Kohala at Kawaihae. Then he was sent for, but Kekuokalani would not let him go to Kailua nor would he go with him. After two days Liholiho went to Kailua, where all the chiefs gathered together at *Kamakahonu*. There Kaahumanu invested the young king with his royal privileges as Kamehameha had commanded. "You are the mother. You are the prime minister (*Kuhina-nui*) for our child. If he does wrong you take the government and care for it."

Liholiho came to the temple wearing a red coat and yellow feather cloak and the royal hat given him by the Englishmen. Some chiefs were by his side and some following bearing *kahilis* and spittoon calabashes.

The people watched him with great fear, honor and delight.

When he met Kaahumanu, she said to him, "E kalani! O Divine One! I tell you the things commanded me by your father. Here are the men, here are the chiefs formerly your fathers. Now here are your (*pua*) flowers and here is your land. We will eat together in the land."

Liholiho assented to the words of Kaahumanu, was placed in charge of the government and bore the name Kamehameha II.

THE fish of the Hawaiian Island were first officially recorded as early as 1782 by Broussonet from specimens obtained during Captain Cook's third voyage to the islands. In 1903 the United States Fish Commission described 902 species of fish belonging to the region of the Hawaiian Islands, including a large number of the giant mackerels, such as the swordfish, tuna, oceanic bonito, and albacore. With such available and authentic records, it is surprising that Hawaii is only now coming into its own as one of the world's greatest game fish resorts.—*S. F. Argonaut*.

DEATH, LYING-IN-STATE AND OBSEQUIES OF QUEEN LILIUOKALANI

LAST SOVEREIGN OF HAWAII

LILIUOKALANI, she who held Hawaii's scepter last, is no more; the link that connected the present with the monarchial days of the past is broken, and her people, with aliens from other lands, are in sorrow. The ex-queen after some months of gradual failing health, owing to her advanced years, passed away peacefully at her residence, Washington Place, Honolulu, Sunday, Nov. 11th, 1917, at 8:30 a. m., surrounded by remaining distant relatives, friends and faithful attendants, aged 79 years, two months and nine days; the last of her family and ending a long line of distinguished high chiefs from which she proudly claimed descent.*

Her long life had been filled with joys and sorrows; cares and responsibilities beyond the ordinary, and reaped the severer reward of her misguided judgment as ruler than any of her predecessors on the throne in the bloodless revolution of 1893, which overthrew the Hawaiian Monarchy. But she lived long enough to realize the error of her course and accept with grace the adjusting governmental changes consequent upon her overthrow which culminated in annexation to the United States. Though bitter with disappointment at the sudden ending of her reign, and hopes of restoration waned as months and years rolled by, the queen gradually forgave her political opponents, and in turn, by precept and example guided her people in loyalty to the Stars and Stripes and the government it represents.

It lost not a whit the devotion of her people. What she lacked from them as ruler, she received as alii by right of all

* Liliuokalani was born in Honolulu of the high Chiefess Keohokale, daughter of Aikanaka, the son of Keohohiwa, the daughter of Keaweheulu, the son of Heulu, the son of Kuanuuanu (known also as Kapa-ihia-ahu), the son of Nuuanu (known also Ahua-a-I), the son of the powerful house of I, a high chief warrior and head of the chief clan of Hawaii called after him.

Hawaiian precedent, enhanced by sympathy, and won by her love and consideration. The unwritten law of the land held good in her case. Of old, deprivation of chiefly power was not accompanied by loss of rank, even though the chief became landless also. It might lie dormant during years of poverty and subserviency but could be asserted by right at any given chance. Liliuokalani therefore grew in the love and affection of her people as her years increased, and held the loyal devotion and respect of the foreign element of the community. Hence the widespread sorrow that pervaded the territory, made more pathetic by the fact of her being the last of Hawaii's monarchs, as also the last of her family line. Though the shortest in reign except Lunalilo's, Liliuokalani enjoyed a longer life than any of her predecessors on the throne, since Kamehameha I.

Church bells tolled the sad news that the end (which had been expected daily for over a week) had come; life had slowly ebbed away; her spirit took its flight without perceptible struggle.

It devolved upon Col. C. P. Iaukea, her private secretary, and one of the trustees under her deed of trust, and who had been constant in attendance during the queen's illness, to see to the funeral arrangements. The governor (absent with the Congressional party at Hilo) on being notified of the event directed that the government assume charge of and accord the remains royal honors and a State funeral. Guards were set at once and thereafter partook outwardly the Military character, but within the precincts of death the ministrations of faithful life-long attendants, friends and loyal subjects, bore out the customs of the race in royal pomp and ceremony to the end.

While the body was being embalmed Kawaiahao church, the scene of nearly all State funerals, was made ready for the lying-in-state, and here the remains were moved from Washington Place at midnight of Monday, under military and police escort, accompanied by many attendants, bearers of stately

kahilis, relatives and loyal subjects, in solemn procession, silent save the wailing and chanting of one and another, en route, the streets meanwhile lined with people to witness the impressive Hawaiian custom of midnight honors. The casket placed upon its bier at the church was surrounded with a forest of large stand kahilis, within these beside the body, stood the watchers, four on each side, with small hand kahilis which they waved in rhythmic order; behind them stood the guard of honor. At the foot of the casket stood one as captain of the watch, motionless. These all changed watches every two hours.

Tuesday the body lay in state from 10 a. m. till 10 p. m. and was viewed by a vast procession of people eager to pay homage to the late queen and gaze for the last time upon her wan face; foreigners in mute and curious sympathy; the natives at intervals venting their sorrow in the oldtime olis, chants, or the uwe helu* lamentation, more particularly among the seated audience. For this occasion the body was without its casket and lay upon a pall of yellow plush, dressed in a shroud of ivory-hued brocaded silk, and wearing her jewels, decorations and diadem. At the head, to the right and left, were two puloulou, or tabu sticks, their spheres covered with white kapa, and at the foot stood the gilt ball puloulou of Kalakaua, with its pendant coat of arms jewels. Floral offerings which were many were arranged with taste and harmony, together with the ahuulas and feather leis.

*The following show the various expressive forms of grief with Hawaiians:

Uwe helu: wailing, in which the mourner recounts his or her experience with the dead, or the exploits of the lone one.

Oli or Olioli: is a continuous monotonous utterance of a chant.

Kanaenae: a method of chanting in which the chanter hesitates at regular intervals to recover breath. In this, there is a greater variation in the tone, the pitch being higher than the olioli.

Hoouwewe: in chanting, is to imitate wailing.

Paha: is simply to call the deceased in a chant.

Mele Inoa: the recitation of the genealogy of the dead and his or her earthly associations.

Namu: in chanting, is a very rough-voiced expressing of one's thought.

This arrangement prevailed throughout the week, varied only in its setting by the daily change of floral tributes and bi-hourly change of the kahili-waving watch, and guards. Many pathetic incidents marked the day, as also in the days and nights following, among which was the low singing by the retiring group of watchers at each change of "Aloha oe", the now wide-world-known song of the late queen's composition, the closing lines of which held a new and deeper pathos as they sang, which touched all hearts and brought tears to many eyes:

"A fond embrace, a ho'i ae au,
Until we meet again."

At the appointed hour as the general public withdrew, the body was placed in a steel casket over which was laid a plush pall the corners of which bore the Kalakaua dynasty motto "Onipaa". Following this sad duty and readjustment of kahilis, and other decorations, the doors of the church were open night and day till 6 p. m. of Saturday, affording the public opportunity to pay their respects, and her devoted attendants and venerable subjects to participate in loyal devotional exercises according to their time-honored customs, in song, chant recitation, olis, or the weird, soul-piercing, disconsolate wail of a grief-sticken heart. During the week many distinguished visitors and officials testified to their respect, and the tributes laid at her bier marked their sympathetic aloha. To the hosts of strangers and new-comers the stately pomp of barbaric splendor with its attendant scenes were of impressive interest never to be forgotten. Never again, in all probability, will its pomp be equalled in the land. Of the various large stand kahilis—cylindrical feather plumes—that were grouped about the bier, organ loft, and central aisle of the church, thirty-one belonged to the queen and twelve or fourteen to Prince Kuhio. While black predominated, many of these were relieved at the top rim and conical base with yellow, red, or other color in contrast. Two of special historic interest in the queen's collection have served in royal funerals since prior to that of Ka-

mehameha III, and are known as "Kaolohaka" and "Keaka." Originally and for many years their handles, or standards, were formed of human bones, but in recent years these were discarded and buried, since which time ivory and tortoise-shell, in rings, have formed the handle of each. While these two were showing the effects of time, there were several seldom heretofore seen, and in colors, kinds of feathers, and sizes of kahili, made the scene particularly effective, as may be judged by the accompanying illustration. To this collection were added later several others from Princess Kawanakoa.

Besides the procession of school children to pay their respects, special musical services were the marked feature on Friday that carried well into the night, the attractiveness of which drew a greater throng than could gain admittance. Signor Wanrell, Mrs. Chas. Hall, Julia Walanika and Miss Bernice Kahanamoku were the principal soloists, while quintettes and societies also gave Hawaiian selections.

Saturday, the final day of lying-in-state, seemed to be more particularly the Hawaiians' day, when they should feel less restraint from intrusion of the curios. Without design it worked out so. Early in the day natives came in for the last opportunity for homage and to voice their grief in their own way. Among them were new arrivals from the other islands whose sorrowful wail at times broke out with wild shriek and abandon.

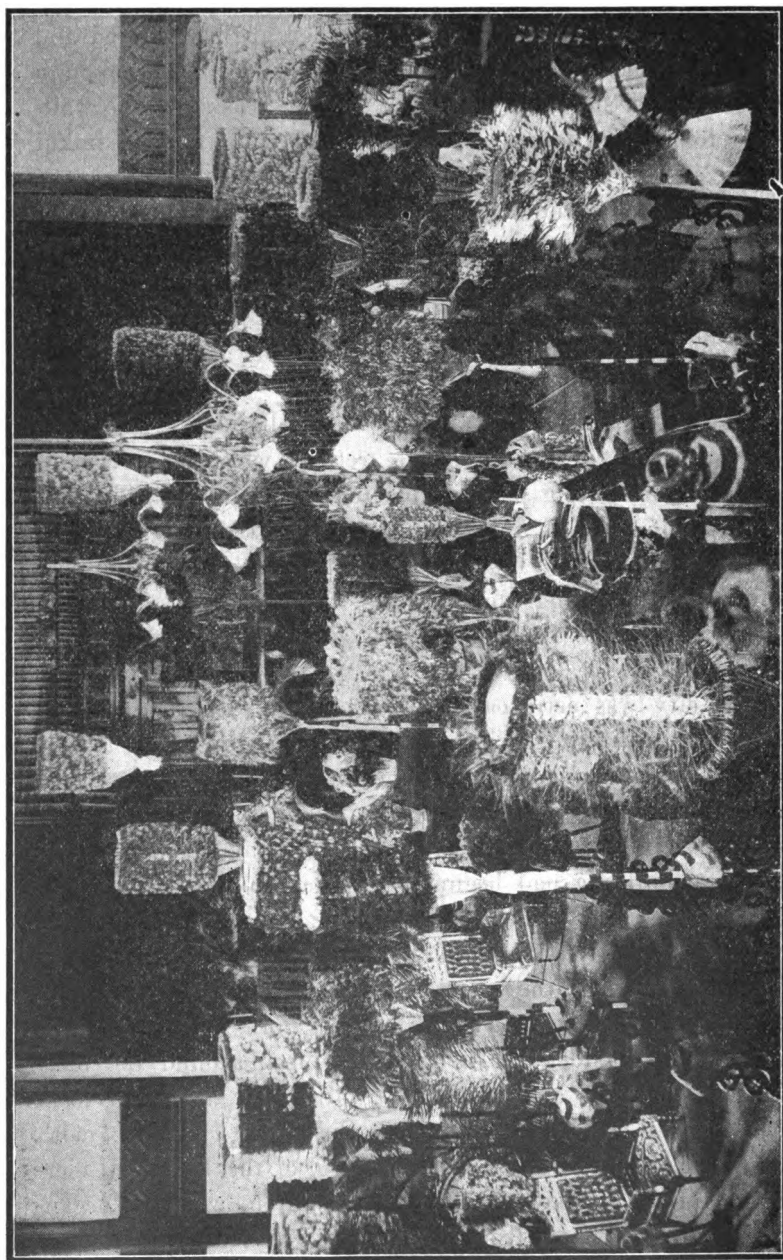
The Congressional party who had returned from Hawaii to participate in the obsequies, visited the church in a body to pay their respects, as did the Governor and other local officials also. Grief-singing in low voice, in solo or small groups, of short meles, as also olis and chants was more general than usual, and interspersed the spells of lone or general wailing so that the day was replete with pathetic and impressive incidents.

At six o'clock, with the change of watchers, was the preparation for removal to the former throne room of the palace. Kahili-bearers removed these alii emblems from their stands and took position ready for march: Rev. Leopold Kroll and the

Priory girls' choir of St. Andrew's cathedral then entered and rendered a short impressive Episcopal service, whereupon a body of chosen stalwarts lifted and bore the casket to the waiting auto-hearse flanked on either side with flaring kukui torches at the front steps of the building. At sight of the casket as it was borne down the steps fresh wailing and chanting prevailed. The church grounds and streets of the vicinity and line of procession was a mass of orderly humanity, through which the hearse, surrounded with kahilis and accompanied by officials and attendants, slowly moved forward to the Executive building.

This sad journey over and the casket borne to the throne room prepared for it, the people retired while close friends performed concluding services, placing the metal casket within one of Koa and Kou in keeping with royal caskets for ages past, and arrangement of kahilis, floral pieces, etc. Admission thereafter to building and grounds was restricted to official invitation, for the funeral services at ten a. m. of Sunday, November 17.

The city was astir early in preparation for the last sad rites; the military, various Hawaiian societies and lodges, schools, scouts, bands, poolas and other bodies assigned to places in the procession, as also the public in general in nervous expectancy. As early as nine o'clock invited ones to the Executive building had begun to fill the limited seats of the room and verandas. The throne room arrangement was as at the church with its silent, kahili-wavers and body-guards; the puloulou marking the sacred precincts, and flowers and wreaths, which came freely, including a floral tribute of sympathy from President Wilson, found place around the bier. Wailing, chanting and singing prevailed till at ten o'clock, when Right Rev. H. B. Restarick, Bishop of Honolulu, with Revs. Leopold Kroll and Canon Usborne of the Episcopal clergy, and H. H. Parker of Kawaiahao church, with the organist and surpliced choir from St. Andrew's cathedral entered the room for the funeral services.



LYING-IN-STATE OF LILUOKALANI.

This beautiful service was rendered impressively throughout, the intoning portion by Rev. L. Kroll resembling very much some of the Hawaiian *olis*. The musical selections of hymns and chants were comforting. At its close the audience filed out; the *kahilis* displaced and many borne out to places beside the catafalque at the front steps, bearers of royal orders and decorations followed and took their positions next in front of the car.

The casket was borne out and down the steps with difficulty owing to its weight, which taxed the strength of the dozen stalwart pall-bearers. The balance of the *kahilis* were brought out following the placement of the casket on the catafalque and assigned to places on each side; minute guns booming meanwhile. As the various military and other divisions or societies fell into place and the Poola society taughtened on the ropes for the long pull, a company of singers on the upper veranda sang the sad song of farewell.

The route of the procession was down King street to Nuuanu, thence up to the mausoleum, all the way of which was lined with spectators, and cameras at every vantage point. As the cortege entered the grounds and the various societies took position, wail and chant broke out anew and continued, with singing, as the casket was preparing for the crypt. Surrounded by military, civil and naval authorities and other dignitaries, all possible honor was accorded Hawaii's last monarch; the new mingling with the old, in testimony of respect to her and sympathy for her people. At the close of the burial service, the casket was lowered to fill its destined niche in the Kalakaua dynasty crypt, and Liliuokalani was left alone to sleep with her kin.

OUR new work on "Ancient Hawaiian Mythology", mentioned in last ANNUAL as ready for publication, is, on the advice of leading publishers, deferred to a more propitious time in the book-market than in the midst of war.

HAWAIIAN VOLCANO OBSERVATIONS.

THE RESULTS OF SIX YEARS' WORK.

ADDRESS OF THE DIRECTOR T. A. JAGGAR, JR., BEFORE THE ASSOCIATION AT ITS ANNUAL MEETING, AUGUST 23, 1917.

From the Hawaiian Volcano Observatory Weekly Bulletin.

SCIENTIFIC DISCOVERIES.

The annual address of 1916 proposed a Kilauea volcano museum. Earlier addresses reviewed our beginnings and stimulated progress in making Mauna Loa accessible. The Observatory on July 1 completed six years of work if we include the preliminary observations in 1911 made by the Technology expedition of that year. It becomes my pleasant duty here to review very briefly the really wonderful advance in volcano knowledge that has resulted from measurements and experiments at Kilauea, an advance much assisted by the outbreaks of Mauna Loa in 1914-16 and the accessibility of Halemaumau during the past seven months.

In 1911 the volcanic heat and liquidity were supposed to increase downward indefinitely in the center of the pit. In 1917 by actual soundings, we know the lava lake to be less than 50 feet deep, occupying a saucer or channel in the cooler and stiffer lava of the lake bottom, of the islands, and of the benches.

In 1911 most geologists still thought that steam actuated volcanoes. In 1917 it is known that only 4% or less of the Kilauea lava-gas is steam and even this in part may be burnt hydrogen. Burning sulphur, hydrogen and carbon gases we now know are powerful heating and oxidizing agents in and about the liquid lava, making great natural blow-pipe flames and effervescing through the hot liquid as in a Bessemer converter.

In 1911 the lava islands were spoken of as "floating". In 1917 we know them after years of careful measurement and record to be uplifted hummocks from the bottom of the shallow

pools. The consolidation of this bottom lava raised into an island, proved in February, 1917, to be clinkery lava or aa, hitherto almost unknown in Halemaumau but common on Mauna Loa.

In 1911 the main well or shaft in the crater was believed to be under "Old Faithful" fountain near the center. In 1917 at least eight such shafts are known, kept open by the rising rush of gas bubbles escaping continuously from solution in the main stiff lava column below. This lava foam rises to the surface, explodes in contact with air and circulates rapidly in a labyrinth of passages of its own making. Thus are produced the spectacular fountainings and streamings of the slaggy lava, so awe-inspiring to the traveler on the brink.

The maps, profiles and photographs, made at short intervals with transit and camera, give the history of measured changes of outline and relief.

In 1911, at great expense, one temperature of the liquid at the surface of the lava was obtained with an elaborate cable trolley system, after sacrifice of much costly apparatus. In 1917 thirty-four measurements of temperature were made from the flaming cones on the floor and all through the lake to its bottom. This work was all done by direct contact of special thermometers encased in steel pipes, and at an expense which was trivial in proportion to the results attained. These results showed that the puffing flames are hottest, the fountains and the bright lines of the lava lake less hot, the lava just below the surface still less hot, and the interior of the stiff bench lava filling the pit from side to side probably least hot of all.

In 1911 no proof existed of any law or order in the risings and fallings of Kilauea and Mauna Loa lavas. In 1917, after six years of careful measurement and record, definite proof exists of half-hourly, daily, monthly, semi-annual, and longer term tides and periods in the movements of the fluid. Furthermore, response of Kilauea to the heavings of Mauna Loa was indicated in 1914-16. A diagram showing the earth-

quake spasms and eruptions in Mauna Loa reveals five marked coincident movements of the two volcanoes in two years, and an immediate return of the lava column in great volume to the Kilauea pit after the Mauna Loa floods had ceased. This diagram records one hundred and twenty separate weekly surveys made with transit. Such charts and measurements were never made before, and these are barely a beginning. Already they have been successfully used for prediction.

SCIENTIFIC THEORIES.

In 1911 the causes of volcanic activity were conceived in as great variety as the individuals who imagined them. A volcano was a steam engine; a volcano was not a steam engine. The earth was hotter downward: the earth was not hotter all the way down. The earth was heated from without inward: the earth was cooling from without inward. The argument in each case was based, not on accumulated measurements and records, but on the validity of this or that observer. One said, "Flames and smoke are abundant at volcanoes"; his opponent replied; "Flames and smoke are unknown at volcanoes." Such arguments as "craters have steam, therefore craters are steam engines," or "lava runs like water, therefore lava on Mauna Loa cannot be connected with Kilauea," are based on false assumptions due to insufficient record of the nature, consistency, temperature and chemistry of a lava column.

In 1917 the steam engine argument falls when the lava is proved to contain little steam and the so-called visible steam proves to be warm air moistened with rain water. The argument against connection between the two volcanoes falls when we know a lava column to be a duplex substance nearly solid, full of gas, and heating itself and foaming when locally uncorked. An eruption of Mauna Loa so conceived is an opening of the vent of a pent-up furnace whose gases were previously but slightly escaping with quiet effervescence through a small orifice at Halemaumau. The effect of the unplugging immediately reacts at the smaller vent, as shown by our charts,

but not at all after the fashion of a watery liquid. In 1917 I do not believe a volcano to be a steam engine, but think of it as Nature's glass factory, actuated by burning gases.

No more need be said about causes and theories. The cause of volcanic activity is subject for a volume, not for a paragraph, but every theory of value in science is essentially a grouping of hard-earned facts. The cause of volcanic activity will only first be stated when at ten such stations as ours, in ten different regions of the globe, experimental records have been kept for years of the rise, heat, consistency, release, flow and cooling of lava. I have myself seen and studied eight different volcanic systems in eight different lands, but only as result of the six laboratory years at Kilauea have I begun to learn a little about fundamental causes.

EQUIPMENT AND OUTPUT.

The foregoing statement of actual discovery embodying the results of six years of progress is more formally set forth in published scientific papers. Such papers hitherto published are only a skimming of the richest surface cream which rises from the full record books now stored on the Observatory shelves. It has been my task to expend the very limited funds available for this work, so as to secure, during the first official five years of the Observatory which ended June 30, 1917, the largest possible accumulation of records, leaving the work of digesting them to the future. In view of this policy the showing made in actual experimental discovery, revealed by the contrast, not of theories, but of known facts between 1911 and 1917 gives high promise for the future.

The record books, maps, photographs, seismograms and geological collections at the Observatory, accumulated during the years, form to my thinking a vastly more valuable asset than any mere apparatus or buildings. Equipment in apparatus or buildings can always be improved or repaired with money. The equipment in records is wholly unique in preserving the sequence and dimensions of changing volcanic processes of two

great volcanoes during a highly significant period. Were these records lost, they could not be duplicated even if a nation's ransom were offered as the price.

As to output, listed figures showing weekly and special reports, scientific papers, bulletins, photographs, and lantern slides were exhibited in last year's annual report. There are thousands of negatives and notes and instrumental tracings. The real output, however, of the establishment for which the subscribers of the Hawaiian Volcano Research Association are responsible, is the net effect on scientific progress of all these activities, on the community, and on the scientific and traveling world, and the example set urging others who live in volcanic lands to establish volcano observatories and so develop the science for its humane and technical ends.

MOTIVES.

The establishment has made records for six years. The Research Association has interested one hundred and fifty local people. The exchange list has reached two hundred other institutions and individuals. The work and the archives are growing in service and value, other institutions have increased their coöperation and interest and have expressed great concern at the mere mention of possible discontinuance. Discontinuance is not possible without forfeit, therefore is unthinkable. I have outlined above the scientific results of our work, but in now taking up the method of its continuance, it is necessary to analyze clearly our motives.

These motives are record, research, exhibition, publication; prevention of disaster; scientific hospitality, publicity, and propagandism. Truly a motley array of impulses, including commerce and education, foreign missions and the three-ring circus, with movie men to photograph the performers. And all to be carried by a modest wooden building on the edge of an active volcano, equipped with apparatus much of which is borrowed.

It is highly desirable to sift these aims down to their fine essentials, or to scrape off the parasitic growths and learn what is at the core of our problem. Research, publication and exhibition are matters of aftermath. Hospitality to visiting men of science and publicity are luxuries, not essentials. Prevention of disaster cannot be routine work, it is rather a goal to be striven for. There remain but two dominant, compelling and all inclusive motives for the work of the Hawaiian Volcano Observatory, these I insisted on in my first address of 1913, and these I reiterate even more strongly after showing results. The fundamental motive for an observatory is recording, and then improved recording and then more recording of a different kind. And following upon this is the propaganda of recording, extended to distant lands.

The future observatory in its scientific work will build a summit camp on Mauna Loa and make it accessible for prolonged visits. It will increase the precision and the frequency of the mappings of Halemauau. It will collect the gases and take soundings and temperatures in many parts of the lava column. It will perfect telephotographic methods, apply the spectroscope to volcanic flames, improve scientific methods of taking moving pictures of the lava, establish voluntary earthquake stations around Mauna Loa and determine for a protracted period the daily tides in the lava lakes.

These things are all matters of recording, and improved re-recording means new facts. The grouping of new facts, as I have shown above, is the whole of science. These records thus improving, will always be our supreme achievements won through privilege of our possession, in Halemauau, of the most marvelous natural geonomical laboratory on the globe. It is for you who dwell in Hawaii to say whether, with your wealth and your brains, you will build and extend this work as your own creation or whether you will yield it up to others.

SCOPE.

Just a word in this place about expansion of the work to include studies of other geological processes. There is

much to be said for Hawaii as an ideal center for geophysical measurement in the field of erosion processes on the land and deep sea processes off shore. Nearly twenty years ago I presented to the Carnegie Institution a plan for a geophysical institute in Hawaii. Still earlier there was printed in the annual report of the Director of the United States Geological Survey an estimate which I drew up for a topographic and geologic survey of this territory.

But all of this, interesting as it may be, is not the work of the Hawaiian Volcano Research Association as expressed in its constitution. Our proper work, namely *permanency* of volcanic recording and *extension* of volcano recording, is nowhere near accomplished. The first means an endowment here. The second means propagandist work in California, South America, New Zealand and Java, the Philippines, Japan and Alaska. Both of these, permanency and propagation, are absolutely essential to the determination of a volcano science, a science which by itself is of vastly too large a scope for any one man or group of men, to say nothing of the money required.

I can best illustrate this point by referring to such a laboratory as the Mt. Wilson Solar Observatory of the Carnegie Institute at Pasadena. That establishment has perhaps twenty times the staff of our observatory, but it is devoted wholly to the study of the physics of the sun. I asked the Director, Dr. Hale, if he could send me a spectroscopist to study Kilauea flames, a subject certainly of interest to astronomy. His reply was that he could not afford to go outside of their proper field, namely the sun. The only distinguishing feature about Mt. Wilson for solar study is that the air is clear. In our case the distinguishing feature of the Island of Hawaii is that the two greatest and most active volcanoes on the globe are there and only there. Shall we then dissipate our energies and our money in that unique field after a start which has been concentrated and encouraging?

THE VOLCANO OBSERVATORY PROPAGANDA.

With substantial scientific discoveries started, and invaluable record books accumulating; with bulletins, reports and articles accredited to Hawaii going into the libraries of the world; with travelers and scientists asking for photographs and asking to visit our plant; with Japan extending its volcano work; in view of all this progress, how can the Research Association join "hands around the Pacific" to get new work started in such colonies as British New Zealand or in Java?

Remembering the terrific disasters by scalding, drowning, suffocation and earthquake which these lands have suffered, conjured up in the mere names Krakatoa and Tarawera; disasters which are bound to decrease in terror with increase in knowledge, as we learn methods of prediction, of safeguard and of rescue; there should be strong appeal to the imagination of all members of this Association in the vision of new observatories in new places.

Besides the humane motive there is the scientific query, what are these distant volcanoes doing at the same time, while Kilauea lava is rising and falling? If there are summer and winter risings at Kilauea, are there summer and winter risings in New Zealand? The answer, yes or no, is a new discovery in science, yet to be made.

What use is there in knowing, do you ask? Answer: in order to discover how to predict, to determine the thickness of the earth crust, to connect volcanoes and earthquakes, to find out why the New Zealand eruptions are different from ours, and ours in turn different. In short, to solve the volcano mystery which underlies all the dwelling places of men.

But more than all these things there is the certainty of the supreme satisfaction of realizing that right here in Hawaii, on these little islands favored by possessing sugar as commercial asset and volcanoes as scientific asset, we will have built the famous center of a new science, and will hold the reins of a new chariot of enlightenment wherewith to do our bit in carry-

ing wisdom to the remote and stricken peoples of earthquake lands.

At the moment the disaster cry is drowned by the sobbing of a war-saddened world. But the war shock has awakened our new world consciousness, and we remote from war may well give our utmost to make the rest of the world less terrible. Nature's ruthlessness has only lately stricken Salvador. The frightful disasters of Messina and San Francisco are recent memories, lives lost by scores of thousands, and property by the thousand million in money. The Whitney endowment which first sent me to Hawaii required investigations "conducted with a view to the protection of human life and property".

If the dignity of missions, to link the world in loving kindness, was worth the devotion of Ellis, Bishop, Bingham and Coan, then is the protection of life, through science, a worthy service for their successors. It is peculiarly appropriate that they should force the pagan fire goddess to give up her secrets in alleviation of distress.

THE OPPORTUNITY FOR HAWAII.

It has been asked why little Hawaii should do this? Why not some eastern endowment of millionaire origin? Answer: the eastern institutions will be only too anxious and ready to take this opportunity away from Hawaii and to build up their fame on what Hawaii rejects. The implication would be that Hawaii is not interested in her volcanoes, takes no pride in their possession, or in having started a unique scientific institution designed for the welfare of mankind, and is glad to be relieved of the financial burden of its maintenance.

Of some hot, stagnant and slipshod tropical colonies which I have visited this imputation might be true, but not of Hawaii. The volcanoes of Hawaii, which have deposited her sugar soils, are as much the property of this energetic people as the older hills which store the waters of irrigation, or the indentations of the shore line that harbor our ships. For an educated folk possessing these things, as well say, "Why

doesn't some eastern institution build our wharves and our ditches?" The issue is not ownership or responsibility. The question at stake is simply, "Will you face the responsibility of that ownership as the privilege of a wealthy and highly cultivated community, knowing that these volcanoes are famous and unique, and knowing that they may give Hawaii a world fame as a scientific center controlling subordinate stations all around the Pacific Ocean? Or will you shift the responsibility because there is little financial return?"

IS THE FUTURE OBSERVATORY TO BE HAWAIIAN?

The volcano laboratories at Kilauea have been made use of thanklessly as a convenience in the past by travelers from distant institutions. The *Hawaiian* Volcano Observatory has reached the parting of the ways. The question is squarely before Honolulu and the Territory whether you wish the present establishment to be Hawaiian and to continue to grow and deal solely with volcano research. There is no other question before this Association.

The three stated purposes of our society are to record volcanic activity, to attract scientific men and to promote volcano observatories. We have no other aims and the Observatory has no other aims. Therefore this Association is and necessarily must be opposed to giving precedence at the Observatory to any studies not volcanological. We should heartily welcome in this field an expert student of the moon with his telescope, for the lunar volcanoes teach us much concerning our own volcanoes. But we would surely not attempt to finance him. In the same spirit of hearty hospitality we would welcome a student of the deep sea bottom. But we could not afford to charter his ship. It must not be imagined that volcano research is geology. The idea of perpetual record at observatories is hardly mentioned in the geological text books. The work of our Observatory is variously physics, chemistry, surveying and meteorology unitedly concentrated on two volcanic vents. We have no aim except to study those vents and all their ram-

ifications. The ocean may affect them, the sun and moon may affect them, but we are not specializing on ocean, sun or moon. We are specializing on volcanoes and volcanoes only, and all work must be directed to that end.

The executive Board of our Association has earnestly supported the Director of the Observatory in determining that the work shall be continued and shall deal with volcano research. It remains for this honorable society and this community, through loyalty to the Islands and pride in their fame, to decide on what scale the work shall endure, and whether the Kilauea laboratory shall be permanently *Hawaiian*.

MUST WE COUNTENANCE THE HULA.

DURING the past summer the *Advertiser*, in dealing with an entertainment of varied Hawaiian attractions given in the city, took occasion to commend effort of like character embodying tableaux, olis, music and songs and innocent dances, in marked contrast to the disgusting obscene hula productions that are too often paraded before the public, and for some unaccountable reason is being introduced abroad as a society attraction. The present writer was quoted as commending the attempt to furnish such Hawaiian entertainments illustrative of ancient customs and recreations, and instanced the first effort on these very lines but a few years ago at the Young Hotel, an invitational affair by Mr. E. L. Parker, a visitor from Buffalo, as a recognition of social courtesies from Honolulu's "four hundred".

I was further quoted as 'grieved at the apparent growing acceptance of the questionable hula, notwithstanding the protests that have been made and laws on the statute books regarding them; a result, doubtless, of the attempt to have it considered a religious ceremonial performance of the early Hawaiians, hence, by inference, innocent, a view that meets with but ridicule from those best qualified to know—the Hawaiians themselves.

With all moral questions there are always those who would obstruct the effort, and charge the would-be reformers with narrowness; interference with one's liberty, and other resentful epithets. Such was the experience attending the incident above referred to, and amid expressions of approval came a very mandatory order over the phone to "mind your own business". Evidently someone's toes had been trodden on, and a probable source of revenue, or side attraction to legitimate business, interfered with.

It comes within the province of the ANNUAL to disseminate reliable information pertaining to Hawaii, and anything that is defamatory and seeks to mislead the public, makes it our business to decry such attempts, and the effort to exploit the lascivious, disgusting hula as an innocent amusement of the Hawaiian people of olden time, demands our protest in unmistakable terms, more especially as claim is made that it was "an institution of divine, that is, religious origin," and that its halls (halaus) were ever provided with an "altar as the visible temporary abode of the deity," hence, forsooth, having the approval of the gods it should by right therefore have the approval of mortals. Those who use this pretext in the endeavor to overcome the scruples of the better element, and foist the shameless thing at public gatherings as an ancient "religious" ceremony and expect unsuspecting visitors and innocent youth of both sexes to look unblushingly upon it, studiously avoid the admission by the author of the above "divine" conception of the hula, that "in modern times it has wandered so far and fallen so low that foreign and critical esteem has come to associate it with the riotous and passionate ebullitions of Polynesian kings and the amorous posturings of their voluptuaries."

This in itself condemns it as an unfit exhibition for any respectable public or semi-public gathering or society function, yet under the plea of rendering an attraction for the tourist, to meet the desire of a certain class, the attempt is made to popularize it, and in doing so commercialize it in vaudeville

shows and low channels, as was done last year, renders it quite time to protest, not only against the various disgusting hulas, for decency sake, but the effort to palm them off as a religious affair.

That Laka was the patron deity of the hula devotees, and its master of ceremonies a kahuna (priest), rendered it no more a religious performance than that of the canoe-building priest, which, like all Hawaiian callings also had each their special deities and invocations. Any impression therefore of the hula having any approach to a religious observance is erroneous. There was a temple service called *hulahula*, which may inadvertently have been the ground for the claim of religious character given the hula, whether of ancient or modern rendition. If such was the case, its ritual has been grossly misinterpreted, as may be seen by the following descriptive account:

"Hulahula was the name of the services of the kapu loulou, which was an important religious ceremony on questions of war or other national moment, observed in large temples like Leahi, Mookini, Puukohola and others of similar character, and in which only the high chiefs participated. The ceremony was held only at night at a time when the people were in slumber; in the solitude of night. At that time the high priest and chiefs entered the temple where the services were to be held on occasions whereby the king might learn clearly the favorable, or ill omens of coming events.

"The observance of the ceremony was so solemn and sacred that death would be meted out to the person who casually passed by; roving or disturbing animals also would be slain.

"In the evening the king made his entry into the temple. At the proper time for the service the high priest performed his duties according to the rituals of his order. If the ordinances were duly observed without interruption of any noise, the high priest would then proclaim the ceremonies perfect, auguring victory for the king in the coming battle, or other question before him."

Anyone can see at once that this religious temple service has no connection whatever with the amusement hula performances in open air, or halau, designed by the performers, with their indelicate bodily contortions to appeal to the baser passions. It is hoped therefore that no further attempt will be made to overcome public scruples of morality by any such flimsy statement of its religious origin.

There are laws on the statute books planned to license and control hula performances, but for some reason or pretext with shameless effrontery they obtrude their presence in public, and have been made the center of attraction in Carnival and Kamehameha day pageants and on other occasions.

The exhibitions of the hula at the opening night of the last Carnival drew forth the following:

"Concerning the hula dancing that was exhibited in the Palace grounds I would say no more than that I would have expected to see it somewhere in New York or Paris at ten cents or five centimes a ticket, but I was sorry to see it in Hawaii. It was about as typically a Hawaiian dance as Magna Charta was a 'scrap of paper.' Why should Honolulu show the hula in a form that we roast when we see it while traveling on the mainland?" (Extract from *Bystander*, Sunday Advertiser, Feb. 25, 1917.)

Also the following excerpts from Kahuna Nui, in the same issue:

"Mister Edditter! Here's sum thing what me and planty more Hawaiian, and kamaaina haole kicking about, and thas that HULA they having at the king palace one nite. And I think so even Kalakaua and the Kamehameha statchu get a shame on they face if they see that. It makes us Hawaiian mad and shame, but I tell you true, you haole is the fault for allowed that kine of hula jus becos it putting sum munny in you pocket. One days you tell becos the hula is bad, then nother days you get sum Hawaiian to dancing it. If hula is bad one days, then its bad for erry other days in the ears. Since the time I bin born and lived and died in Hawaii nei I

never see this kind of hula what make the Hawaiian blushes underneath of they olive-brown skin."

The next day appeared this protest, signed A Hawaiian:

"Editor Advertiser—I wish to second the remarks of 'Kahuna nui' in yesterday's Advertiser, in regard to the public hula exhibition given in the Capitol grounds last week as a sample of Hawaiian dancing.

"It was lewd, suggestive and disgraceful. There were no ones more disgusted with it than the Hawaiians present. They felt keenly that they were being defamed in the eyes of the visiting strangers. It is to be hoped that future Carnival managers will see to it that nothing of this kind is permitted to occur again."

Disapproval has been freely expressed, and protests from time to time appear in the daily press, as is shown, but with doubtful result. Shortly following the published account mentioned in the opening of this paper, the following note came to hand, which speaks for itself:

"It has been a great pleasure to note the recent hard knocks against the present-day hula. When occasion offered I have done my own little "bit" against the hula, insisting that no worse sort of promotion could be invented, as it panders to the worst element, not to the solid, well-behaved class that every country needs. My voice however does not go for much, the subject needed the strong voice of substantial citizens, who command respect, having great influence.

Gratefully yours,

"JOSEPH DUTTON."

In support of the foregoing comes an echo from abroad. Evidently there has been "a chiel among us, takin' notes," and he has printed them to our disgrace and shame, as follows, for which we are indebted to the *Star-Bulletin*:

"A vigorous campaign to stamp out the time-honored hula-hula national dance of Hawaii, which is accomplished without the dancer moving his or her feet, has been instituted by clergy-

men and the reform element, according to Rev. Ezra Crandall, of Worcester, Mass., who arrived in San Francisco recently, after a visit of several weeks in the island capital, says the San Francisco Bulletin.

"The 'disgusting hula' of the present day, according to Rev. Crandall, is a survival of an ancient pagan ceremony practised by the Hawaiians, but it has so degenerated that it has become a moral menace. Rev. Crandall stated that it is the opinion of those conducting the campaign that every self-respecting Hawaiian should take a stand against the terpsichorean indecency involved in the native dance.

"The hula, as it is commonly danced and commonly known now," said Rev. Crandall, "should be the subject of vigorous condemnation, and I do feel that every Hawaiian should feel this reflection on the decency and propriety of his race.

"For the honor and the good name of the Hawaiian race, all men and women of Hawaiian blood are being urged to join in discountenancing these indecent exhibitions. The mere fact that some people, principally tourists, want to see them is no excuse for their existence. They are a shame to the islands."

MORE MAUI HEIAU SITES.

BY courtesy of Mr. J. F. G. Stokes of the Bishop Museum, the following additions are made to the paper on Maui's Heiaus and Heiau Sites in our last issue. These were gathered as a side issue on his visit to Maui in charge of the Museum Exhibit at the Maui County Fair, held at Wailuku, toward the close of 1916.]

On the land of Hononana, between Honokahau and Kahakuloa, is a heiau, name unknown, reported to be still in good condition.

Kaneaola heiau, at Kahakuloa; north and middle of the valley; once stood on knoll south of road, nothing of which now remains. Kuewa heiau, at Kahakuloa, back in the valley. Also another one named Pakao. Not seen. All Kahakuloa in-

formation by local natives, who also reported a sacrificial heiau at Waihee, known as Kalanihale.

Ulukua heiau, in ili of Paukauila, Waihee, nothing of which now remains. Said to have been for sacrifice and houlu ai; built by Kahekili.

Kapoho heiau, southeast of Koihale, on slope of hill; now destroyed. Site not found.

Kamahoe heiau, on land of same name east side of the valley, destroyed; stones said to have been taken for cattle pen. Some discrepancy exists regarding this temple, as Liliha Keliipio, living on the other side of valley, said that Kamahoe was further mauka; a platform heiau, destroyed; its site now in cane.

Puukuma heiau, on ili of same name in Waihee, on the Waiehu side of the ridge, about a mile from the sea; destroyed by the plantation. Built by Kalanikupule for the welfare of people and land. Kane and Lono principal gods, and there were many others. Site not visited.

Puuhonua* and heiau Poaiwa, on land of same name, on ridge between north and south Waiehu, two miles from sea, just below the ditch. Reported that stones had been removed. Not visited.

Heiau Moomuku, for sacrifice; between Makawao and Kula. Not seen.

Heiau Poohoolewa, nearly a mile from sea, at Honopou, on plateau; a sacrifice temple. Stones disturbed; not visited. E. J. Smyth, school teacher at Huelo, is authority for this and the following two: Punokaupu, half a mile from the sea, at Honokala (now occupied by vacant house where Smyth formerly lived); on plateau; a heiau for sacrifice; not visited, and one, name unknown, 200 feet north of Huelo school, makai of road; demolished by Maui Sugar Co.

Puukalepa, a platform heiau for sacrifice, once stood about 800 feet east of Huelo Protestant Church; on top of

* Puuhonua, place of refuge.

small knoll on western side of gulch overlooking old taro patches; now entirely gone.

Hinalekahi heiau, at Hanehoi, below old ditch on the east side of gulch, west of Kailua Protestant Church. Nearly all destroyed when the ditch broke. Part remaining shows single high terrace; a temple for sacrifice. Jonas Kaea, informant on these two.

Pakanaloo, on upper slopes of Keanae, not far from sea; a platform heiau; not seen.

Kaluanui, a small heiau, 41 x 42 ft., on land of same name, at Wailua nui, below a *koa ia* known as Ohia, one-third of a mile from sea; on side of taro patch; of two sections, enclosure and platform, the latter running into the hill and seeming to have continued up the slope. Said to have been for sacrifice, and that the drums are heard.

Makehau heiau, on flat land of same name, at Wailua nui, mauka of main lower road, and one hundred and fifty feet south of Makehau road. Disturbed; of platform character, 43 x 72 remaining with indications that it extended to greater width. Eight coconut trees on platform, said to have been planted by Kaniho, who took care of the temple, and was remembered as an old man by Kalo, the guide and informant.

Mokae, a platform heiau at Hana; not seen.

Puunaio, a heiau for sacrifice, in Papaka uka, Keonecio; reported all destroyed.

Paalua, a heiau in the ili of Kalihi, for rain and fish; an L-shaped walled enclosure, 94 x 75 ft. said to have been repaired by Laemoa (k) and Kamalii (w), both of whom died over ten years ago. Had the appearance of recent repairs.

Koula heiau at Kanahena, for houlu ai. Not seen.

Heiau said to be on top of Puu Olai hill; name unknown; not seen.

Kalani heiau, at Kaeo, a sacrifice temple; drums heard. Not seen.

Nanahu heiau, on point, north of landing at Makena. A pavement of pebbles and some coral, about twenty feet square

and level with ground. No other features. Said by several natives to be a "heiau for dead people". Probably only a sacred place without temple structure.

Wailuku heiau, in ili of Kawililipoa, Kamaole, mauka. Not seen.

Kolea heiau, in ili of Kawililipoa, for sacrifice. Not seen.

Heiau, name unknown, in same ili, on sea plain, 200 feet makai or west of lower road and same distance south of Mormon church. Destroyed, probably a kahua. (Guide for last told of previous two.)

Heiau reported on Puu hele, Waikapu. Not examined.

Hikii heiau, at Ukumehame; on knoll east side of stream about a mile from the sea and 200 feet elevation. Northwest and northeast walls changed and interior used for grave-yard. Two remaining walls would indicate a size of 55 feet square. named after chief Hikii. (Kaahui, informant, aet. 93.)

A reputed heiau, located on west side of the stream, opposite Hikii; also used as a grave-yard. Kaahui denies that it was a heiau.

Heiau Kaiwaloa, at Olowalu, on hill near power line; a large, walled heiau in fair condition. Many graves in its enclosure.

A heiau at Honokahua was reported; name unknown, of which no particulars could be gathered.

Certain Japanese papers of this city for some time past have been endeavoring to create a spirit of dissatisfaction among plantation laborers with their wages, notwithstanding the liberal bonus system that was entered upon last year in addition to their monthly wage, whereby day laborers on a number of plantations have averaged from \$36.20 to \$39.50 per month, while contracting cultivators show earnings ranging from \$23.69 to \$52.96 per month, and these figures are already being exceeded by the higher rates ruling this year's sugar market. It is estimated that the bonus to be paid laborers for the 1917 sugar crop will reach \$7,000,000. Some people, with the I. W. W. spirit, want the earth.

THE ALGAE OF THE HAWAI'IAN ARCHIPELAGO

AN ANNOTATED LIST OF THE KNOWN ALGAE.

BY VAUGHAN MACCAUGHEY,

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THE following list will indicate the specific character of the seaweeds, fresh-water, and terrestrial algae of the Hawai'ian Islands. Insofar as has been possible to obtain records, the list comprises practically all known Hawai'ian algae, and is the only up-to-date list extant. As the field has never been intensively surveyed in its entirety, there is undoubtedly a vast number of forms still undescribed. This is particularly true of the phyto-plankton. The list included brief characterizations of the species and genera, with special reference to geographic distribution. Items of special interest, such as economic uses, are also noted, although it has been necessary to sharply restrict such data, for sake of compactness. The list is intended as a reconnaissance, and carries no implications of completeness.

The sequence followed is that of Engler and Prantl; the sequence of species is that of De Toni's "Sylloge Algarum". The determinations are principally those of Tilden, Lemmermann, Reed, and Setchell; in many cases material collected by the author has been compared with the original descriptions, and the representative stations or habitats have been confirmed, re-defined, or extended. The literature concerning the habitats and ecological relations of Hawai'ian algae is scanty, and the chief aim of the present paper has been that of summarizing available data, and indicting the need for more detailed and intensive investigations.

CLASS SCHIZOPHYCEAE, THE BLUE-GREEN ALGAE.

I. CHROOCOCCACEAE.

A large, cosmopolitan family of twenty genera, occupying a wide range of habitats, from hot springs to endyphytic situations. Eight genera of the Hawai'ian flora.

1. *Chroococcus*.

A genus of over thirty species, either free-floating or forming layers in damp places; in fresh or salt water, or in the tissues of other plants. *C. turgidus* (Kuetz.) Naegeli; in shallow stagnant pools; collected on the slopes of Mauna Kea, Hawai'i. *C. macrococcus* (Kuetz.) Rabenh.; in shallow stagnant pools; collected on the slopes of Mauna Kea, Hawai'i.

2. *Gloeocapsa*.

A cosmopolitan genus of about sixty species, mostly occurring on wet rocks, damp soil, and in shallow water; plants spherical, either single or a number associated in families; cells capsulated. *G. polydermatica* Kuetz.; plant-mass gelatinous, dull green or dusky olive; on wet cliffs and rocks. *G. quarternata* (Brebisson) Kuetz.; forming a gray-green mucilaginous coating on wet cliffs; often near waterfalls. *G. magma* (Breb.) Kuetz.; forms a grumous crustaceous copery-purple mass on wet stones, along mountain streams. *G. thermalis* Lemm.; forms a mucous, hyaline or dark-purple mass; in hot pools on the island of Hawai'i.

3. *Chondrocystis*.

A monotypic genus. *C. Schauinslandii* Lemm.; plant-mass cushion-shaped, widely expanded, up to 35 cm. high, cartilaginous, soft, fragile, encrusted with lime at the base; recorded only from the Laysan lagoon.

4. *Gloeotheca*.

A genus of about twenty species, mostly on wet stones and among moss, rarely free-swimming in the water; colonies imbedded in a common gelatinous tegument. *G. fuscolutea* Naegeli; soft gelatinous, blue-green masses, covering the surface of the water in rice fields and among taro patches.

5. *Aphanothece*.

A cosmopolitan genus of about twenty species, inhabiting fresh water and moist places; plant-mass more or less expanded, somewhat spherical or without definite shape. *A. Naegeli* Wartmann; plant-mass gelatinous, forming soft, olive-brown lumps on the sides of waterfalls, among mosses, liverworts, etc.; and on wet cliffs. *A. prasina* A. Braun; plant-mass soft, gelatinous, more or less globular, bright emerald green; forming free-swimming, tuberculose, globose, or flattened masses; floating in brackish stagnant water in rice patches and similar situations.

6. *Gomphosphaeria*.

A cosmopolitan genus of three or more species; the colonies spherical, mucous, solid, and free-swimming. *G. aponina* Kuetz.; collected among marine algae at Laysan.

7. *Coleosphaeriopsis*.

A monotypic genus; colonies spherical, gelatinous, hollow. *C. halophila* Lemm.; collected in the Laysan lagoon.

8. *Merismopedium*.

A cosmopolitan genus of about fifteen species, in fresh and salt waters; colonies flat, rectangular, free-floating. *M. glaucum* (Ehrenb.) Naeg.; in shallow, sluggish water, taro patches, etc.

II. CHAMAESIPHONACEAE.

A family of nine genera, widely scattered in fresh and salt water; mostly epiphytic or attached to shells. Two genera in the Hawai'ian flora.

1. *Xenococcus*.

A genus of three or more species; marine epiphytes and on rocks and shells. *X. Laysanensis* Lemm.; epiphytic, disk-shaped colonies; collected on marine algae at Laysan. *X. Kernerii* Hansgirg; colonies irregularly expanded, crustaceous; fairly abundant in ditches and taro patches.

2. *Chamaesiphon*.

A genus of 12-14 species, epiphytic or on sticks and stones, chiefly in fresh water, rarely in the ocean; cosmopolitan. *C. curvatus* Nordstedt; collected among filaments of *Cladophora longarticulata* var. *Elongatum* Nordst. was collected in the same places.

III. OSCILLATORIACEAE.

A cosmopolitan family of over twenty genera; filaments frequently branched, containing one or more trichomes. Ten genera in the Hawai'ian flora.

1. *Oscillatoria*.

A large genus of over one hundred species, in fresh, hot, and salt water, and damp places; cosmopolitan. *O. sancta* Kuetz.; plant-mass dark lead color, "becoming violet when died and tinting the paper a beautiful violet"; forms a reddish-brown or grayish skin on the wet sides of cliffs, ditches, and similar moist earthy places. *O. Bonne-maisonii* Crouan; trichomes form loose and regular spirals; epiphytic on marine algae, Laysan; mixt with other algae, floating in lagoons within the reefs, Hawai'i and other islands. *O. corallinae* Gomont; trichomes gregarious, forming a delicate coating on larger algae; collected at Laysan in washings from marine algae. *O. laetevirens* Crouan; plant-mass thin, membranaceous, bright blue-green; abundant, forming a delicate stratum covering the bottoms of tidal pools in rocky places along the platform reefs; also collected among washing from marine algae at Laysan. *O. formosa* Bory; plant-mass dark blue-green; common on wet cliffs in the mountains, as in the vicinity of waterfalls; also on the walls of moist caverns, near the mouths.

2. *Trichodesmium*.

A genus of five or more species, very abundant in warm and equatorial seas, near the coasts; the plants forming scale-like, disconnected, free-floating colonies, "sea bloom". The Red Sea is named from one of these plants. *T. Thierbaultii* Gomont; colonies green; collected in plankton between Hawai'i and Laysan. *T. contortum* Wille; colonies bright yellow, spirally twisted; collected in plankton between Hawai'i and Laysan.

3. *Spirulina*.

A cosmopolitan genus of over fifteen species, in fresh, brackish, and salt water; trichomes unicellular, cylindric, sheathless, forming a regular spiral. *S. major* Kuetz.; plant-mass dark blue-green; usually scattered among other algae, on the sides of wet cliffs, and near the mouths of moist caves. *S. subtilissima* Kuetz.; plant-mass mucous, dark green; collected in washings from marine algae at Laysan.

4. *Phormidium*.

A large cosmopolitan genus of over fifty species, on wet rocks and in fresh water, rarely in salt water. Filaments simple, forming a woolly or felt-like layer, or rarely floating; attached at the base with free ends torn and ragged. Four Hawaiian species. *P. Crosbyanum* Tilden; plant-mass 2 cm. thick by 5 cm. diam., impregnated with lime, somewhat hard, bluish-green to reddish-brown in color; forming flattened globose cushions on rocky shelves along the coral reefs and ledges, between tide marks. *P. papyraceum* (Agardh) Gomont; plant-mass expanded, glistening, thin, leathery, dark green; on wet rocks and cliffs, and around water-tanks, troughs, flumes, etc. *P. Laysanense* Lemm.; collected on *Turbinaria* at Laysan. *P. favosum* (Bory) Gomont; plant-mass moderately expanded, papery or thick, attached at base, floating; on sides and bottoms of irrigation ditches and troughs, tanks, etc.

5. *Lyngbya*.

A cosmopolitan genus of about sixty species, in fresh and salt water; filaments free, unbranched, free-floating or forming a densely intricate floccose or expanded mass. Thirteen Hawaiian species. *L. mucicola* Lemm. epiphytic; collected on *Chondrocystis Schauinslandii* at Laysan. *L. rivulariarum* Gomont; occurring in masses of *Nostoc*, in ditches and taro patches. *L. subtilis* W. West; filaments solitary and scattered; in pools and ditches. *L. distincta* (Nordst.) Schmidle; in ditches and streams; also found among filaments of other algae, ex. *Pithophora*. *L. cladophorae* Tilden; epiphytic on filaments of *Cladophora*, in the mountain streams. *L. Meneghiniana* (Kuetz.) Gomont; plant-mass up to 1 cm. high, caespitose, fasciculate, mucous, dull blue-green; collected on marine algae at Laysan. *L. semiplena* (C. Ag.) J. Ag.; plant-mass rarely higher than 3 cm., caespitose extensive, mucous, usually dull yellowish-green or dark-green; growing in the rocky basins of tidal pools along platform reefs; also collected on marine algae at Laysan. *L. confervoides* C. Ag.; plant-mass 5 cm. high, caespitose, extended, fasciculate, mucous, dull yellowish or dark green; on rocky shores and in tidal pools. *L. aestuarii* (Mertens) Liebman; plant-mass widely expanded, either forming a compact woolly layer on moist earth, or a floccose mass floating in water, blackish or dull blue-green; common in ditches and muddy taro patches, forming a skin over the substratum, also on sandy beaches. forma *natans* Gomont; plant-mass at first attached to wet earth, later floating; filaments loosely entangled; floating in fresh-water lagoons, rice fields, taro patches, etc. forma *aeruginosa* (Ag.) Wolle; plant-mass dark blue-green; forming conspicuous patches in shallow water of rice fields and taro patches. *L. majuscula* (Dillwyn) Harvey; plant-mass up to 3 cm. in length, widely expanded, dark blue to yellowish green, filaments very long; epiphytic on other marine algae, in shallow water along the coral reefs. *L. Martensiana* Menegh.; plant-mass caespitose, blue-green; on twigs under dripping water; under flumes and tanks, and near waterfalls. *L. perelegans* Lemm.; epiphytic on marine algae collected at Laysan. *L. Kuetzingii* var. *distincta* (Nordst.) Lemm.; epiphytic on such forms as *Pithophora* and *Cladophora*, in ditches and ponds.

6. *Hydrocoleus*.

A cosmopolitan genus of fifteen or more species, in fresh and salt water; plant-mass forming a caespitose cushion. *H. cantharidosmus*

(Mont.) Gomont; plant-mass up to 2 cm. high, caespitose, slippery, olive or dark blue-green; growing with other algae in shallow water along the coral reefs and beaches.

7. *Inactis*.

A cosmopolitan genus of 15 freshwater species. *I. Hawai'iensis* (Lemm.) De Toni; filaments solitary, growing in a gelatinous mass formed by other algae; collected in warm water in Hawai'i, in company with *Gloeocapsa*, *Stigonema*, etc.

8. *Microcoleus*.

A cosmopolitan genus of about twenty species, in the ocean and fresh water, rarely on moist soil; filaments simple or vaguely branched; creeping on the ground, sometimes growing among other algae. *M. paludosus* (Kuetz.) Gomont; filaments entangled, growing among other algae or forming a blackish or blue-green stratum; with other algae forming a layer covering rocks on the bottom and sides of the warm spring in Puna, Hawaii.

9. *Catagnymene*.

A genus of two or more species, widely distributed in warm oceans; filaments unicellular, floating free. *C. pelagica* Lemm.; collected in plankton between Hawai'i and Laysan. *C. spiralis* Lemm.; collected in plankton, between Hawai'i and Laysan.

10. *Haliarachne*.

A genus of several marine species; filaments multicellular, free-floating, in globose or elongate colonies. *H. lenticularis* Lemm.; collected in plankton between Hawai'i and Laysan.

IV. NOSTOCACEAE.

A cosmopolitan family, of twelve genera.

1. *Nostoc*.

A cosmopolitan genus of sixty or more species, in fresh-water or on moist soil, rarely in brackish water. Six Hawai'ian species. *N. punctiforme* (Kuetz.) Hariot; colonies small, globose, scattered or confluent; on the wet walls of ditches and taro patches. *N. paludosum* Kuetz.; plant-mass very minute, scarcely visible to the eye, punctiform, gelatinous; in ditches and pools. *N. Linckia* (Roth) Bornet; colonies of various sizes, finally clathrate-fenestrate and irregularly torn, blue-green or violet; with *Conferva sandwicensis* and other algae in pools, taro patches, swampy places, etc. *N. piscinale* Kuetz.; in rice fields and taro patches, ditches, etc. *N. spongiaeforme* Agardh; colonies at last expanded, verrucose, bulbose; in taro patches and other shallow pools. *N. foliaceum* Mougeot; plant-mass gelatinous, spongy, lacunose; in globules among mosses and liverworts on wet cliffs in the mountains, and in the vicinity of waterfalls. *N. commune* Vaucher; plant-mass finally spreading out into undulating, folded, fleshy, torn or perforated sheets, leathery on the surface; common around water-troughs, tanks, flumes, and similar moist situations. *N. verrucosum* (L.) Vaucher; colonies often gregarious, up to 10 cm. in diam. at first solid, gelatinous, firm, spherical, later hollow and torn; forming small, black-green, shot-like balls, covering the sides of pools in falls and rapids of the mountain streams; not uncommon.

2. *Nodularia*.

A cosmopolitan genus of eight or more species, in fresh, brackish and salt water. *N. Hawai'iensis* Tilden; plant-mass stringy, dark green; in tufts, along the outer margin of the coral reefs, constantly washed by the surf; fairly common.

3. *Anabaena*.

A cosmopolitan genus of about forty species, in both fresh and salt waters. *A. variabilis* Kuetz.; plant-mass gelatinous, spreading on damp soil or floating free, dark green; on bottoms and sides of irrigation ditches, taro patches, and other moist places. *A. catenula* (Kuetz.) Bornet & Flah.; plant-mass gelatinous, floating, blue-green; frequent in stagnant water of rice fields and taro patches; sometimes in mountain streams. *A. confervoides* Reinsch; plant-mass thin; floating in taro patches and other shallow water.

4. *Cylindrospermum*.

A cosmopolitan genus of about twelve species, in stagnant fresh water and moist ground; plant-mass expanded, indefinite, mucous. *C. stagnale* (Kuetz.) Born. & Flah.; plant-mass floccose, attached or floating; on wet cliffs and in the vicinity of waterfalls. *C. catenatum* Ralfs.; plant-mass mucous, orbicular-confluent, indefinite, blackish-green; along the mountain streamways, on rocks and wet cliffs; abundant in some places.

5. *Richelia*.

A small genus, endophytic; trichomes single. *R. intracellularis* J. Schm.; collected in plankton between Hawai'i and Laysan; living in the cells of *Rhizolenia styliformis* and *Hemiaulis delicatus*.

6. *Aulosira*.

A small, saltwater genus of three or four species; filaments, free, equal, scattered or fasciculate. *A. Schauinslandii* Lemm.; collected on *Turbinaria* at Laysan.

7. *Microchaete*.

A cosmopolitan genus of seven species, in fresh and salt waters; plants small, aggregated in star-shaped or cushion-shaped tufts; filaments unbranched, erect, attached at base. *M. Vitiensis* Askenasy; plant-mass loosely caespitose, tomentose, short; collected growing on *Liagora coarctata* at Laysan.

8. *Hormothamnion*.

A genus of two species, occurring in the Atlantic and Pacific Oceans; plant-mass formed from filaments growing together in a longitudinal manner. *H. solutum* Bornet & Grunow; plant-mass floccose, entangled, mucous, green or blue-green; here and there along the coral reefs; not uncommon in shallow water and salt pools.

V. SCYTONEMACEAE.

A family of six genera, widely distributed; filaments branched and with false branches.

1. *Plectonema*.

A cosmopolitan genus of twelve or more species; filaments free or forming a flat felt-like mass, branched. *P. nostocarum* Bornet; filaments graceful, elongate, at first much-branched, later sparingly branched; collected in hot water in the vicinity of Kilauea Crater.

2. *Scytonema*.

A large genus of nearly fifty species, abundant in fresh water and on moist soil, widely distributed; filaments branched. *S. rivulare* Borzi; plant-mass widely expanded, woolly, blackish, verging toward red; forming dark-brownish or purplish-red cushions on stones in the mountain streams; plentiful. *S. crispum* (Ag.) Bornet; plant-mass caespitose, entangled, woolly, green, becoming brown or olive; in ponds, rice fields, taro patches, and other quiet or stagnant waters. *S. azureum* Tilden; cell contents deep purple-blue; with other algae forming a layer covering rocks on the bottom and sides of the hot spring in Puna, Hawai'i. *S. varium* Kuetz.; plant-mass 2-3 mm. high, cushion-shaped, bluish-green or brownish; on wet cliffs near waterfalls. *S. Javanicum* (Kuetz) Bornet var. *Hawai'ense* Lemm.; plant-mass cushion-shaped, dark blue-green; collected among the wet mosses in the vicinity of Kilauea Crater, Hawai'i. *S. ocellatum* Lyngb.; plant-mass cushion-shaped, black or gray, becoming bluish; on moist shaded rocks and wet cliffs. *S. guyanense* (Montagne) Born. & Flah.; plant-mass dense, cushion-shaped, 1-2 mm. thick, widely expanded, blackish-green; on moist stones. *S. mirabile* (Dillwyn) Born.; plant-mass woolly, widely expanded, spongy tomentose, brownish-black or blackish-green; collected in shallow stagnant pools, Mauna Kea, Hawai'i. *S. fuliginosum* Tilden; plant-mass thin, bluish-green; forms thin layers on the bottoms of shallow tidal pools, along the platform reefs and rocky shores; fairly common.

3. *Tolypothrix*.

A cosmopolitan genus of about fifteen species, in fresh water and moist places; filaments branched. *T. lanata* (Desv.) Wartmann; plant-mass caespitose-floccose, blue-green, becoming brownish with age; found in shallow stagnant pools on Mauna Kea, adhering to leaves in the water. *T. distorta* (Hofman-Bang) Kuetz.; plant-mass caespitose-floccose or cushion-like, blue-green or brownish; forming tufts or cushions on stones in the mountain streams; plentiful.

VI. STIGONEMACEAE.

A family of eight genera, inhabiting a great variety of aquatic and humid situations; filaments free, rarely laterally aggregated, scattered, frequently branched.

1. *Hapalosiphon*.

A cosmopolitan genus of seven or more species, in fresh or hot water, or on the bark of trees; plant-mass caespitose-floccose, thin; filaments free, branched. *H. fontanalis* (Ag.) Bornet; plant-mass dull blue-green, 3 mm. high; found in shallow stagnant pools on Mauna Kea, adhering to leaves.

2. *Fischerella*.

A genus of three species, widely distributed, and inhabiting moist places and hot waters; plant-masses forming a continuous, more or less expanded layer, often terrestrial. *F. ambigua* (Naeg.) Gomont; plant-mass crustaceous, orbicular, up to 1 mm. thick, brown becoming black; on moist soil in shady places. *F. thermalis* (Schabe) Gomont; plant-mass 0.5 mm. thick, cushion-shaped, woolly, expanded, blackish-olive or blue-green; collected in hot water in the vicinity of Kilauea Crater. var. *mucosa* Lemm., habitat as for the species.

3. *Stigonema*.

A cosmopolitan genus of over fifteen species, in fresh water and moist situations; plant-mass rigid, blackish-brown, or cushion-like and

soft; filaments free. *S. aerugineum* Tilden; plant-mass forming a brown, membranous layer on the bottoms of shallow quiet pools. *S. ocellatum* (Dillwyn) Thuret; plant-mass cushion-shaped, woolly, brownish; in shallow quiet pools. *S. minutum* (Ag.) Hassall; plant-mass crustaceous or cushion-like, thin, fragile, blackish; collected on moist stoney soil near Hilo, Hawai'i.

VII. RIVULARIACEAE.

A family of eleven genera, in a great variety of habitats thruout the world.

1. *Calothrix*.

A cosmopolitan genus of nearly forty species; plant-mass consisting of penicillate tufts or a soft, velvety expansion; filaments simple or slightly branched. *S. confervicola* (Roth) Ag.; filaments gregarious, stellately fasciculate, attached, rigid; collected on marine algae, at Laysan. *C. aeruginea* (Kuetz.) Thuret; filaments forming a somewhat continuous light blue-green layer on the surfaces of larger algae; common in tidal pools along the coral platforms and rocky shores. *C. crustacea* Thuret; plant-mass caespitose, velvety, widely expanded, blackish green or brownish; epiphytic on other algae in tidal pools along the coral platforms and rocky places. *C. fusca* (Kuetz.) Bornet & Flah.; filaments scattered or gregarious; living within the colonies of gelatinous algae; in ditches, taro patches, and rice fields. *C. Sandvicensis* (Nordst.) Schm.; epiphytic on filaments of *Pithophora* affinis, in shallow water. *C. rhizoleniae* Lemm.; collected in plankton between Hawai'i and Laysan, on *Rhizolenia* and *Hemiaulus*.

2. *Rivularia*.

A cosmopolitan genus of twenty-five or more species, in fresh and salt water; colonies spherical, hemispherical, or inflated and lobed, solid or hollow; sometimes confluent into an indefinite mass. *R. natans* (Hedwig) Welwitsch; colonies spherical, hollow, soft, dull olive green; forming soft brown velvety masses, in rice fields and taro patches.

CLASS CHLOROPHYCEAE, THE GREEN ALGAE.

A very large and widely distributed class, of about twenty-five families, eighteen of which are represented in the Hawaiian Archipelago.

I. SPHAERELLACEAE.

This cosmopolitan family of unicellular, free-swimming forms has one genus recorded from Hawaiian waters.

1. *Haematococcus*.

This genus is often referred to *Sphaerella*. *H. pluvialis* Flotow; occurs thruout the islands in shallow pools and streams, often forming reddish patches. It is a cosmopolitan species, like its congener the "red snow", *H. nivalis*. *H. thermalis* Lemm.: is abundant in the warm springs of Puna, Hawai'i, and is endemic to this region.

II. VOLVOCEAE.

A large family, mostly confined to fresh water, but a few species inhabiting the seas. Seventeen or more genera, of which one is recorded from Hawaiian waters.

1. *Gonium*.

A small genus, of two or three species, inhabiting fresh waters thruout the world. *G. sociale* (Duj.) Warm.; occurs in ponds, taro

patches, etc., thruout the islands. Other well-known genera, such as *Volvox*, *Pandorina*, and *Eudorina*, have not been reported as yet from the islands.

III. TETRASPORACEAE.

A fresh water family, with a few marine species; found in all parts of the earth; comprising ten or more genera.

1. *Dactylococcus*.

A small genus of three species, widely distributed in fresh waters. *D. infusionum* var. *minor* Nordst.; a widely known species; in streams and shallow water.

2. *Dictyosphaerium*.

Another small fresh water genus; of wide distribution. *D. pulchellum* Wood; a fairly common species.

IV. PLEUROCOCCACEAE.

A large family of fifteen genera, chiefly inhabiting fresh water and moist places; a few marine forms.

1. *Gloeocystis*.

G. gigas (Kuetz.) Lagerh.; has been collected from swamps on the slopes of Mauna Kea.

2. *Raphidium*.

A small, fresh water genus, thruout the world. *R. polymorphum* Fres.; a cosmopolitan species, occurs thruout the islands in fresh water.

3. *Schroederia*.

S. setigera Lemm.; in pools and streams.

4. *Closteriopsis*.

C. longissima Lemm.; in pools and streams.

5. *Oocystis*.

A genus of about ten species, in fresh or brackish water in all parts of the world. *O. Naegeli* A. Br.; has been collected from the swamps of Mauna Kea.

6. *Scenedesmus*.

A genus of about ten species, in fresh water thruout the world. *S. quadricauda* (Turp.) Breb.; in pools and reservoirs thruout the islands. var. *Oahuensis* Lemm.; has been collected on Oahu.

V. CHARACIACEAE.

1. *Characium*.

A cosmopolitan genus of 35-40 fresh-water species. *C. ensiforme* Herm.; collected from swamps on Mauna Kea. *C. minutum* A. Br.; in wet caves and other moist places. *C. groenlandicum* Richter; found growing on crustaceans in the Moloka'i fish-ponds.

VI. HALOSPHAERACEAE.

1. *Halosphaera*.

A monotypic genus; oceanic. *H. viridis* var. *gracilis* Lemm.; collected in plankton between Hawai'i and Laysan.

VII. HYDRODICTYACEAE.

A cosmopolitan family, in fresh or slightly brackish waters.

1. *Pediastrum*.

A widely distributed fresh water genus of 25 or more species. *P. integrum* var. *Braunianum* (Grun) Nordst. *P. Boryanum* (Turp.) Menegh. *P. duplex* var. *clathratum* A. Br. var. *reticulatum* Lagerh. *P. tetras* (Ehrenb.) Ralf. *P. bidentulum* var. *ornatum* Nordst.

2. *Hydrodictyon*.

A cosmopolitan, monotypic genus. *H. reticulatum* (L.) Lagerh.; is plentiful in rice fields, taro patches and other shallow waters. It is called *pala-wai* by the natives, and sometimes used by them for food. The name is also applied to a number of other green fresh-water algae.

VIII. OPHIOCYTIACEAE.

1. *Ophiocytium*.

A genus of seven or eight species, widely dispersed in fresh water. *O. gracilipes* A. Br.; a free-swimming form, in shallow waters, and also in wet caves.

IX. CONFERVACEAE.

1. *Conferva*.

A genus of many species, 40-50, in fresh water in all parts of the earth; thallus filamentous, unbranched, the filaments silky. *C. bombycina* var. *minor* Wille; cosmopolitan. *C. Sandwicensis* Ag.; confined to these islands, in rice fields, pools, and streams.

X. ULVACEAE.

The Sea Lettuces, a widely distributed family, in salt and fresh water; five genera, of which three occur in Hawaiian waters.

1. *Monostroma*.

A salt water genus of about 30 species; several of these occur in brackish pools and lagoons along the reefs, thallus thin, membranous, of a single later of cells, often imbedded in jelly; at first sack-like, later rupturing and expanded.

2. *Ulva*.

A widely dispersed genus of about 20 species, in salt or brackish water; thallus bright green, thin membraneous, expanded; when removed from the water it resembles wet green tissue paper. *U. rigida* Ag.; has been collected on Laysan; also occurs along the coral reefs of the other islands, ex. Oahu. *U. fasciata* Delile; frond stipitate, simple or divided into acute segments. *U. lactuca*, forma genuina Hauck.; var. *lasciniata* (Wulf.) J. Ag.; these three forms are common in shallow waters along the coasts and coral reefs. Frequently great quantities are thrown up on the beaches by high tides or lee storms. *Fasciata* is known to the natives by the names *limu paha-paha* or *limu pa-laha-loha*; *lactuca* is called *limu lipa-laha-laha* or *limu paka-ea*. These grow in quiet water near the shore, and are easily gathered. When air-dry, these *Ulvas* have about 18% water, 14% protein, 50% starches, sugars, etc., and 15% ash.

3. *Enteromorpha*.

A large, abundant and widely distributed genus of about 35 species, in fresh and salt waters; thallus green, filiform or obviously tubular-cylindric; simple or ramified, the divisions tubular-saccate. *E. flexuosa* (Wulf.) Ag.; on stones, etc., along the beaches; in Hono-

lulu harbor; a cosmopolitan species. *E. Hopkirkii* Ag.; an obscure species. *E. intestinalis* (L.) Link.; cosmopolitan, with numerous varieties and forms. *E. linza* (L.) J. Ag.; cosmopolitan, with several varieties. *E. plumosa* Kuetz.; cosmopolitan. *E. prolifera* (Muell.) J. Ag.; cosmopolitan. var. *tubulosa* Kuetz. *E. compressa* (L.) Grev.; cosmopolitan, with numerous varieties. var. *trichodes* Kuetz. These all grow in shallow salt or brackish waters along the coast, and in brackish pools and ditches. They are usually very abundant at the mouths of streams, in the brackish water. They are easily gathered, and are all considered edible by the natives. These algae, called limu ele-ele, are among the most abundant, most popular, and most widely used of the edible algae. They are commonly on sale at the native markets. Chemical analyses of air-dry material show about 13% water, 12-19% protein, 50% fats and carbohydrates exclusive of crude fiber, and 10-20% ash.

XI. ULOTHRICHIACEAE.

A widely distributed family of seven or more genera, in fresh water and moist places, and in brackish water; rarely in salt water.

1. *Ulothrix*.

A large genus of over 30 species, in fresh, brackish, and salt water, in all parts of the world, filaments grass-green, soft and flaccid, unbranched, at first forming tufts, attached, later entangled. *U. subtilis* Kuetz. *U. minutata* Kuetz. These two species occur in rice fields, taro patches, ditches, and other similar situations. The yellow-green, unbranched, decumbent, soft, hair-like fleece is attached to the bottom, or rocks; under dripping water it forms a bright green crust.

XII. CHAETOPHORACEAE.

A family of thirteen genera; chiefly inhabiting fresh water, a few species in salt or brackish water; widely distributed.

1. *Stigeoclonium*.

A cosmopolitan genus of about 30 species, in fresh water; thallus gelatinous, thin, caespitose, epiphytic or on wet rocks. *S. Falklandicum* Kuetz.; called limu pala-wai or limu li-pala-wai by the natives, and used by them for food. Occurs in streams and pools; fairly abundant; also in numerous north temperate regions. *S. amoenum* Kuetz.; called limu hulu-ilio, grows in brackish ponds by the sea; eaten by only a few of the natives, a cosmopolitan species with many varieties. *S. tenue* Kuetz.; frequently grows on the vertical cliffs of waterfalls, and becomes 12-14 inches long; a cosmopolitan species with many varieties.

2. *Draparnaldia*.

A cosmopolitan fresh-water genus, of about 17 species; filaments branched, in penicillate fascicles. *D. macrocladia* Nordst.; occurs in streams and pools; fairly common; for example, Manoa Stream, Nu'uau Stream, Kalihi, etc., recorded only from the Hawai'ian Islands.

3. *Aphanochaete*.

A cosmopolitan fresh-water genus, of about 17 species; filaments branched, decumbent filaments. *A. repens* A. Br.; occurs in taro patches, swamps, etc.; often epiphytic on such plants as *Cladophora*:

also in moist caverns, on the walls and floors, ex. Makiki Valley; a cosmopolitan species, occurring in Europe and New Zealand.

4. *Chaetosphaeridium*.

C. globosum (Nordst.) Klebahn; widely distributed in fresh water; thallus sub-globose, of branched procumbent filaments.

XIII. OEDOGONIACEAE.

A cosmopolitan family of two genera, in fresh or slightly brackish waters.

1. *Oedogonium*.

A cosmopolitan genus of nearly 200 species, filaments not branched; vegetative cells cylindric. *O. obsoletum* Wittr.; in brackish waters; also in Europe and N. America. *O. globosum* Nordst.; in streams; recorded only from Hawaiian Islands. *O. crispum* var. *Hawaiense* Nordst.; in swamps and pools; a cosmopolitan species with numerous varieties. *O. Pringsheimii* forma *pachydermatosporum* (Nordst.) Hirn.; collected in Mauna Kea swamps; a cosmopolitan species with numerous varieties. *O. acrosporum* var. *majusculum* Nordst.; collected in Mauna Kea swamps; a cosmopolitan species with numerous varieties. *O. longicollis* Nordst.; in pools and ditches; there are several varieties. A number of these species are plentiful in the mountain streams, and in the vicinity of waterfalls.

2. *Bulbochaete*.

A cosmopolitan genus of about 45 species, with branching filaments, inhabiting fresh or slightly brackish waters. *B. varians* Wittr. var. *hawaiensis* Nordst., widely distributed in temperate regions, as well as in the tropics. *B. rectangularis* Wittr. var. *hiloensis* Nordst.; another widely distributed species with numerous varieties.

XIV. COLEOCHAETACEAE.

A monogeneric family of six to eight cosmopolitan fresh-water species, represented in the islands by

1. *Coleochaete*.

C. orbicularis Pringsh.; thallus minute, orbicular, 2-3.5 mm. diam.; *C. irregularis* Pringsh.; thallus irregular, bright green, filaments decumbent; cosmopolitan, on aquatic plants.

XV. CLADOPHORACEAE.

A widely dispersed family of six genera, in fresh and salt water, and inhabiting a variety of situations.

1. *Chaetomorpha*.

A large genus of fifty species, extending from pole to pole, in fresh, salt, and brackish water. The filaments are branched, often forming tufts or dense masses. Abundant around wharves, ditches, tidal pools, etc. *C. Pacifica* Kuetz.; abundant along the shores; occurs in all tropical waters; filaments grass green, coarse and rigid.

2. *Cladophora*.

A very large genus of 200-300 species, inhabiting all waters; well represented in the Hawaiian flora; thallus floating or attached, filaments highly branched, firm, not gelatinous; common. *C. fracta* (Dillw.) Ag.; in streams and damp caverns, a cosmopolitan species

with numerous varieties. *C. inserta* Dickie; in brackish pools along the coasts. *C. Nordstadii* De T.; pools and swamps of fresh water. *C. composita* Harv. & Hook.; thallus pulvinate, spongiose, pale green; filaments delicate membranous, pellucid. *C. nitida* Kuetz.; this species is called limu hulu-ilio by the natives, and is sometimes used for food; it occurs in mountain streams and pools. *C. composita contracta* Brand; along the leeward shores of Oahu. *C. Montagnei* Waianeana Brand; these two occur in shallow water along the coral reefs and shoals; this species is Cuban. *C. antennina* (Bory) Kuetz.; this and several other species are used locally by the natives for food, chiefly on Maui and Hawai'i. They are called limu hulu-ilio "dog's hair", limu ilio, or limu manu.

XVI. BRYOPSIDACEAE.

A monogeneric family of one species, in all oceans, but most abundant in warm and tropic seas; thallus unicellular, filiform, branched.

1. *Bryopsis*.

About 25 species, in all seas, most abundant in tropics; fronds tubular, elongate, upper part pinnatifid, bright-green. *B. plumosa* Kuetz.; plentiful in quiet shallow water, on sandy bottoms, along the coral reef; also occurs in many other seas; fronds 2-6 ins. long, often gregarious, highly pinnatifid.

XVII. CAULERPACEAE.

A family of two genera, of wide distribution, but most abundant in tropical waters.

1. *Caulerpa*.

A genus of about 80 species, in tropical and subtropical seas. *C. pinnata* (L.) Web.; collected at Laysan. *C. racemosa* var. *laetevirens* Web.; collected at Laysan; the species is known from the Red Sea; there are several varieties. *C. laxifolia* (Vahl.) Ag.; plentiful along the leeward coral reefs in shallow waters and tidal pools; resembling a miniature lycopodium, thruout the Pacific and Indian Oceans.

XVIII. CODIACEAE.

A family of eight genera, widely dispersed in temperate and tropical oceans, most abundant in the latter.

1. *Halimeda*.

A genus of about 20 species, in temperate and tropic waters; thallus lobed, often incrustated with lime; an important reef-builder. *H. tuna* (Ell. & Sol.) Lam.; is abundant in the shallow waters along the coral reef, its jointed erect thallus strikingly resembling a miniature prickly pear cactus; a cosmopolitan species. *H. opuntia* (L.) Lam.; has been collected at various points along the reef, and also at Laysan; a cosmopolitan species, with many varieties and forms.

2. *Codium*.

A genus of about 20 species, in temperate and tropic waters; thallus spongiose, spherical, crustaceous, or cylindric-filiform. *C. adhaerens* (Cabr.) Ag.; fronds form a sheet on the substratum; periphery excrecent; cosmopolitan. *C. tomentosum* (Huds.) Stackh.; these two are called limu a-ala-ula by the natives, and are plentiful in shallow water along the reefs; fronds cylindric, elongate, dark

green; cosmopolitan. *C. Muelleri* Kuetz.; is called limu a-ala-ula and also on Hawai'i, limu wawae-iole and limu wawae-moa. It also occurs in shallow waters along the coasts; often on exposed rocks in the surf, or on the outer margins of the reefs. The *Codiums* all have stout holdfasts, and require a knife or chisel for collecting.

XIX. VALONIACEAE.

A marine family of eleven genera, chiefly in tropical seas.

1. *Valonia*.

A tropical genus of about 20 species; fronds irregularly tubular or vesicate, simple or sparingly ramified. *V. aegagropila* (Roth) Ag.; cosmopolitan in all warm seas. *V. confervoides* Harv.; cosmopolitan in all warm seas. *V. urticularis* Ag.; called limu li-puu-puu by the natives, and used by them for food. These species all live along the coral reefs; also occur in all warm seas.

2. *Dictyosphaeria*.

A small genus of three or more tropical species. *D. favulosa* (Ag.) Dcne.; common along the reefs and coasts in shallow water; also collected at Laysan, and occurring in all warm seas; fronds vesiculose, roundate-hemispheric.

3. *Microdictyon*.

A small tropical genus of five species; thallus reticulate. *M. umbilicatum* (Vellay) Zanard; delicate, leaf-like, netted thalli; fairly common in pools and shallows along the coral reefs; a cosmopolitan species in all warm seas.

XX. PITHOPHORACEAE.

A monogeneric family, with about ten forms, widely distributed in fresh and salt waters, chiefly marine.

1. *Pithophora*.

Thallus composed of two distinct parts,—a branching, erect stem, and a basal, rhizoid-like part. *P. affinis* Nordst.; native name, limu pala-wai or li-pala-wai; recorded only from the Hawaiian Islands.

CLASS CHARALES.

CHARACEAE.

A cosmopolitan family of six genera, inhabiting fresh and brackish waters.

1. *Nitella*.

A cosmopolitan genus of about 80 species, in fresh and brackish waters. *N. Hawaiensis* Nordst.; in streams, brackish ditches, and pools.

2. *Chara*.

A cosmopolitan genus of about 70 species, in fresh and brackish water. *C. coronata* var. *leptosperma* forma *Oahuensis* (Meyen) A. Br.; in ditches and pools. *C. gymopus* var. *armata* (Meyen) Nordst.; on all the islands, in ditches, shallow pools, etc.

CLASS CONJUGATAE.

I. ZYGNEACEAE.

A very widely distributed family of four genera, in fresh or slightly brackish water.

1. *Mougeotia*.

A cosmopolitan genus of about 45 species; filaments simple, cells cylindric; chlorophores single, axile. *M. capucina* (Bory) Ag.; in pools and swamps; cosmopolitan, from Scotland to New Zealand; dark violaceous.

2. *Zygnema*.

A cosmopolitan genus of about 40 species; filaments simple; chlorophores star-shaped. *Z. spontaneum* Nordst.; in ditches, taro patches, rice fields, etc.; known only from the Hawaiian Islands.

3. *Spirogyra*.

A familiar and cosmopolitan genus of about 75 species; represented in the Hawaiian flora by a number of species, abundant in streams and pools, both in the mountains and on the lowlands; a number of them are used by the natives as food, and called limu pala-wai.

II. DESMIDACEAE.

A very large and widely dispersed family of about thirty genera, largely confined to fresh water; a few forms in brackish water and in the sea. They occur in a great variety of habitats, wherever there is sufficient moisture for their growth. The following lists of Hawaiian desmids and diatoms are adapted mainly from Lemmerman's list:

Desmidium aptogonium var *acutius* Nordst.; *Gymnozyga moniliformis* Ehrenb.; *Gonatozygon Ralfsii* De Bary; *Cylindrocystis Brebissonii* Menegh.; *Closterium didymotocum* var *multinucleatum* Nordst.; *C. praelongum* Breb.; *C. Pritchardianum* Archer; *C. lineatum* var *sandvicense* Nordst.; *C. diana* Ehrenb.; *C. parvulum* Naeg.; *C. monilliferum* (Bory) Ehrenb.; *C. setaceum* Ehrenb.; *Penium lamellosum* Breb.; *P. navicula* Breb.; *Tetmemorus granulatus* forma *minor* Nordst.; *T. levis* var *continuum* Nordst.; *Disphinctium palangula* (Breb.) Hansg.; *D. subglobosum* (Nordst.) De Toni; *D. connatum* (Breb.) De Bary; *D. annulatum* (Naeg.); *D. speciosum* var. *simplex* Nordst.; *Pleurotaenium trabecula* (Ehr.) Naeg.; *P. Ehrenbergii* (Ralfs.) Delp.; *P. indicum* (Gren.) Lund.; *P. nodulosum* (Breb.) De Bary; *Xanthidium armatum* var *fissum* Nordst.; *Cosmarium granatum* var *subgranatum* Nordst.; *C. Meneghini* Breb.; *C. crenatum* Ralfs.; *C. Holmense* Lund.; *C. parvulum* Breb. forma *spetbergensis* Nordst.; *C. sulcatum* Nordst.; *C. depauperatum* Nordst.; *C. anisochondrum* Nordst.; *Arthrodesmus octocornis* forma *hawaiiensis* Nordst.; *Euastrum binale* (Turp.) Ralfs.; *E. ansatum* Lund.; *E. sinuosum* Lenorm.; *Micrasterias truncata* (Corda) Breb.; *M. ascendens* Nordst.; *Straurastrum subtile* Nordst.; *S. spongiosum* var *griffithianum* (Naeg.) Lagerh.; *S. subscabrum* Nordst.; *S. muticum* Breb.; *S. monticulosum* var *duplex* Nordst.; *S. margaritaceum* Ehrenb.; *S. tenuissimum* West.

This gives a total of fifteen genera and forty-seven species.

CLASS FLAGELLATAE.

The Flagellates that have been recorded from the Hawaiian Islands are as follows: Fam. *Craspedomonadaceae*—*Salpinocoea pyxidum* S. K. Fam. *Hymenomonadaceae*—*Dinobryon sertularia* Ehrenb. Fam. *Euglenaceae*—*Euglena spirogyra* Ehrenb., *Phacus pyrum* (Ehrenb.) Stein; *P. pleuronectes* Nitzsch; *Trachelomonas volvocina* Ehrenb.; var *minuta* Lemm.; *T. oblonga* Lemm.; var *truncata* Lemm.; *T. hispida* (Perty) Stein. These forms were collected

in ditches, taro patches, rice fields, and fish ponds, in quiet, shallow waters.

CLASS SILICOFLAGELLATAE.

Several species have been taken in plankton between Hawai'i and Laysan, as follows: *Dictyocha fibula* var. *messanensis* (Haeckel) Lemm.; var. *stapedia* (Haeckel) Lemm.; *Distephanus speculum* (Ehrenb.) Haeckel.

CLASS PERIDINIALES.

A large number of this class have been taken in plankton between Hawai'i and Laysan. **Fam. Pyrocystaceae**—*Pyrocystis fusiiformis* Wyv.; *P. pseudonotulica* Wyv.; *P. lunula* Schuett. **Fam. Gymnodiniaceae**—*Hemidinium nasatum* Stein. **Fam. Peridiniaceae**—*Pyrophacus horologium* Stein; *Ceratium candelabrum* (Ehrenb.) Stein; *C. furca* (Ehrenb.) Clap. & Lachm.; *C. fusus* (Ehrenb.) Duj.; var. *concavum* Gourr.; var. *extensum* Gourr.; *C. gibberum* Gourret; var. *contortum* Gourr.; *C. gravidum* Gourret.; *C. lineatum* Ehrenb.; *C. tripos* (Mueller) Nitzsch; var. *arcticum* (Ehrenb.) Cleve; var. *arcuatum* Gourret; var. *horridum* Cleve; var. *macroceros* (Ehrenb.) Clap. & Lachm.; *Gonyaulax polyedra* Stein; *G. polygramma* Stein; *Goniadoma armatum* (Schuett) Schmidt; *Diplopsalis lenticula* Bergh.; *Peridinium divergens* Ehrenb.; var. *depressum* (Bail.) Cleve.; var. *rhomboideum* Lemm.; *P. inconspicuum* Lemm.; *Oxytoxum Schauinslandii* Lemm.; *Ceratocorys horrida* Stein; var. *longicornis* Lemm.; *Phalacroma mitra* Schuett; *Aphisolenia palmata* Stein; *A. Schauinslandii* Lemm.; *Histioneis quadrata* (Schuett) Lemm.; *H. Steinii* (Schuett) Lemm.

CLASS BACILLARIALES.

The diatoms are represented by a large number of forms.

Fam. Melosiraceae—*Melosira Juergensii* Ag.; *Gallionella nummuloides* (Dill) Bory; *Paralai sulcata* (Ehrenb.) Cleve.; *Hyalodiscus subtilis* Bail.; *H. Scoticus* (Kuetz.) Grun. **Fam. Sceletonemaceae**—*Sceletonema costatum* (Grev.) Cleve. **Fam. Coscinodiscaceae**—*Cyclotella striata* (Kuetz.) Grun.; *Coscinodiscus excentricus* Ehrenb.; *C. dimorphus* Castr. **Fam. Stictodiscaceae**—*Archnoidiscus ornatus* Ehrenb. **Fam. Asteropampraceae**—*Asteropampa Marylandica* Ehrenb.; *A. rotula* Grev. **Fam. Aulacodiscaceae**—*Aulacodiscus orientalis* Grev. **Fam. Pyrgodiscaceae**—*Pyrgodiscus calyciflos* Temp. & Brun. **Fam. Eupodiscaceae**—*Actinocyclus ornatus* Rattr.; *A. Ralfsii* (W. Sm.) Ralfs; *A. splendens* Rattr.; *A. Ehrenbergii* Ralfs; *A. subtilis* (Greg.) Ralfs. **Fam. Rhizosoleniaceae**—*Guinardia elongate* Lemm.; *Rhizosolenia semispina* Hensen; *R. setigera* Brightw.; *R. styliiformis* Brightw.; *R. temperi* var. *acuminata* Perag. **Fam. Chaetoceraceae**—*Bacteriastrum varians* Lauder; *Chaetoceros diversum* var. *tenu* Cleve; *C. laciniosum* Schuett; *C. peruvianum* Brightw. **Fam. Eucampiaceae**—*Climacodium Jacobi* Cleve. **Fam. Triceratiaceae**—*Triceratium arcticum* Brightw.; *T. dubium* Brightw.; *T. zonatula* Grev.; *T. punctatum* Brightw.; *T. Shadboldtianum* var. *robustum* Lemm. **Fam. Biddulphiaceae**—*Biddulphia pulchella* Gray; *B. reticulata* Roper; *B. imperialis* Walker. **Fam. Isthmiaceae**—*Isthmia nervosa* Kuetz.; *Isthmiella enervis* (Ehrenb.) Clev. **Fam. Hemiaulaceae**—*Hemiaulus hauckii* Grun.; *H. delicatus* Lemm. **Fam. Anaulaceae**—*Terpsinoe musica* Ehrenb.; *T. australis* Ehrenb. **Fam. Tabellariaceae**—*Rhabdomena adriaticum* Kuetz.; *R. robustum* Grun.; *Tabellaria platystoma* Ehrenb.; *T. rhabdostoma* Ehrenb.; *Climacosira mirifica* (W. Sm.) Grun.; *Striatella deliculata* (Kuetz.) Grun.; *Grammatophora marina*

(Lyngb.) Kuetz.; var. *communis* Grun.; var. *macilenta* W. Sm.; *G. haviensis* Mereschk.; *G. angulosa* Ehrenb.; var. *hamulifera* (Kuetz.) Grun. **Fam. Entopyllaceae**—*Gephyria media* Arnott. **Fam. Meridionaceae**—*Opephora pacifica* (Grun.) Petit; *Licmomorpha flabellata* (Carm.) Ag.; *L. remulus* Grun.; *L. Ehrenbergii* var. *tenuistriata* Mereschk.; *L. dubia* Grun.; *L. Grunowii* var. *elongata* Mereschk.; *L. juergensii* Ag.; *Climacosphenis moniligera* Ehrenb.; *C. elongata* Mereschk. **Fam. Fragilariaceae**—*Fragilaria capucina* Desmaz.; *F. lamella* Ehrenb.; *Rhaphoneis setacea* Ehrenb.; *Synedra ulna* var. *splendens* (Kuetz.) Brun.; *S. acus* Kuetz.; *S. radians* Kuetz.; *S. pulchella* (Ralph) Kuetz.; *S. affinis* Kuetz.; var. *Sandwicensis* Grun.; *Ardissonia fulgens* (Grev.) Grun.; *A. superba* (Kuetz.) Grun.; *A. robusta* (Ralfs) De Not.; *Toxarium undulatum* Bail.; *T. semilunare* Lemm.; *T. Kennedyanum* (Grev.) Grun.; *T. rostratum* Hantz.; *Asterionella formosa* Hass.; *A. notata* Grun. **Fam. Eunotiaceae**—*Eunotia pectinialis* (Kuetz.) Rabenh. **Fam. Achnanthaceae**—*Achnanthes glabrata* (Grun.) Cleve.; *A. lanceolatum* Breb.; *A. brevioes* var. *angustata* Grev.; var. *penhaeformis* Grev. **Fam. Cocconeidaceae**—*Campyloneis grevillei* W. Sm.; var. *typica* Cleve.; *Cocconeis pellucida* Hantzsch.; *C. pseudomarginata* Greg.; var. *intermedia* Grun.; *C. heteroidea* Han.; var. *sigmoidea* Grun. **Fam. Navicularaceae**—*Navicula* (Caloneis); *C. liber* var. *linearis* Grun.; var. *genuina* forma *tenuistriata* Cleve.; *C. formosa* Greg.; (Diploneis) *D. papula* A. S.; *D. splendida* Greg.; *D. Schmidtii* Cleve.; *D. weissflogii* A. S.; *D. notabilis* Grev.; *D. vacillans* A. S.; *D. nittescens* Greg.; *D. crabro* var. *multicostata* Grun.; var. *minuta* Cleve.; *N. cuspidata* var. *ambigua* Ehrenb.; *N. pupula* Kuetz.; *N. confervacea* Kuetz.; *N. anceps* var. *obtusa* Grun.; (Trachyneis) *T. aspera* Ehrenb.; var. *pulchella* W. Sm.; *T. antillarum* var. *mereschk* Cleve.; *T. velata* A. S.; *N. cryptocephala* Kuetz.; *N. rhyncocephala* Kuetz.; var. *amphiceros* Kuetz.; *N. consors* A. S.; *N. cancellata* var. *gregorii* Ralfs.; *N. zostereti* Grun.; *N. Brasiliensis* Grun.; *N. concilians* Cleve.; *N. Kennedyi* var. *Tahitiensis* Cleve.; (Pinnularia) *P. appendiculata* Ag.; *P. interrupta* forma *stauroneiformis* (V. H.) Cleve.; *P. divergens* W. Sm.; *P. borealis* Ehrenb.; *P. stauroptera* var. *interrupta* Cleve.; *P. acrosphaeria* forma *maxima* Cleve.; *P. major* Kuetz.; *P. viridis* Nitzsch; *Pleorosigma Balticum* (Ehrenb.) W. Sm.; *P. formosus* W. Sm.; *P. rigidum* W. Sm.; *P. angulatum* W. Sm.; *Tropidoneis lepidoptera* var. *Samoensis* Grun.; *Mastogloia decussata* Grun.; *M. fimbriata* Brightw.; *M. minuta* Grev.; *M. exigua* Lewis; *M. goesii* Cleve.; *M. citrus* Cleve.; *M. pumila* Grun.; *M. quinquecostata* var. *concinna* A. S.; *M. electa* A. S. **Fam. Gomphonemaceae**—*Gomphonema parvulum* Kuetz.; *G. gracile* var. *dichotomum* W. Sm.; *G. lanceolatum* Ehrenb.; *G. subclavatum* Grun.; *G. olivaceum* var. *tenellum* Kuetz.; *Rhiocospheia curvata* (Kuetz.) Grun. **Fam. Cymbellaceae**—*Amphora ovalis* (Brem.) Kuetz.; var. *pediculus* (Kuetz.) V. H.; *A. coffaeiformis* Ag.; *A. lineolata* Ehrenb.; *A. angusta* var. *eblongella* Grun.; *Rhopalodia gibba* (Ehrenb.) O. M.; *R. musculus* (Kuetz.) O. Mueller; *R. gibberula* var. *minuens* O. Mueller; var. *Vanheurckii* O. Mueller; var. *minuta* O. Mueller. **Fam. Nitzschaceae**—*Nitzschia penduriformis* Greg.; var. *minor* Grun.; *N. subcostata* Grun.; *N. Janischii* Grun.; *N. angularis* W. Sm.; *N. sigmoidea* (Nit.) W. Sm.; *N. vermicularis* (Kuetz.) Hant.; *N. sigma* (Kuetz.) W. Sm.; var. *intercedens* Grun.; var. *rigidula* Grun.; var. *curvula* (Ehr.) Brun.; *N. obtusa* var. *nana* Grun.; *N. linearis* (Ag.) W. Sm.; *N. palea* (Kuetz.) W. Sm.; *N. ventricosa* Kitton; *N. lorenziana* var. *major* Grun.; *N. curvirostris* Cleve.; var. *closterium*

(Ehrenb.) V. H.; *N. acuclaris* (Kuetz.) W. Sm.; *N. longissima* (Breb.) Ralfs; *N. pungens* Grun.; var. *atlantica* Cleve. **Fam. Surirellaceae**—*Surirella fastuosa* Ehrenb.; *S. anfractosa* A. Sc.; *Podocystis adriatica* Kuetz.; *Campylodiscus Grevillii* Leud.-Form.; *C. Kittonianus* Grun.

CLASS PHAEOPHYCEAE: THE BROWN ALGAE.

Comprising 19 families and widely distributed thruout the oceans of the world. Mostly marine; a few freshwater forms. Represented in the Hawaiian flora by only four families, and exceedingly sparse as compared with such regions as the northwestern coast of America.

I. ECTOCARPACEAE.

A family of ten genera, most numerous in the North Atlantic, but widely distributed in other oceans. One genus in Hawaiian waters.

1. *Ectocarpus*.

A genus of 30-40 species, widely scattered in all oceans, fronds filamentous, monosiphonous or occasionally partly polysiphonous. *E. simpliciusculus* var. *Vitiensis* Asken.; along the coasts, often on other algae ex. *Turbinaria*; also collected at Laysan. *E. indicus* Sonder; plentiful along the coasts, in shallow water; called limu aka-akoa or limu hulu-ilio by the natives, and used by them as food. *E. paradoxus* Mont.; common along the coasts and reefs.

II. SPHACELARIACEAE.

A cosmopolitan family of ten genera; one in Hawaiian waters.

1. *Sphacelaria*.

A cosmopolitan genus of at least 12 species; fronds olive-green, filamentous, branching. *S. tribuloides* Menegh.; common in shallow waters along the coasts. *S. furcigera* Kuetz.; fairly abundant in pools and shallow waters along the reefs.

III. ENCOELIACEAE.

A cosmopolitan family of 14 genera, two in Hawaiian waters.

1. *Hydroclathrus*.

A monotypic genus in tropic and sub-tropic waters thruout the world. *H. cancelatus* Bory; abundant in shallow waters along the coral reefs; forms a stiff, olive-brown, perforated cushion, several inches broad.

2. *Asperococcus*.

A genus of three species. *A. bulbosus* Lam.; frequent in shallow water along the coasts.

IV. FUCACEAE.

A large cosmopolitan family of 26 genera, chiefly in cold waters. Poorly represented in the Hawaiian flora.

1. *Turbinaria*.

A widely distributed genus of about five species. *T. ornata* J. Ag.; abundant along the outer margin of the coral reefs, where it is exposed to the full force of the surf; often cast upon the beaches in great quantities after storms; very tough and leathery. *T. vulgaris* J. Ag.; habitat as for the preceding, but not so abundant.

2. *Sargassum*.

A very large genus of about 200 species, widely dispersed, thru-out warm oceanic waters; thallus highly differentiated, with stems, attachment-disks, leaves, air-bladders; fruits in compound branches. *S. obtusifolium* J. Ag.; known only from the Hawai'ian Islands. *S. polyphyllum* J. Ag., and var. *fissifolium* Grun.; known only from the Hawai'ian Islands. *S. densum* Dickie.; known only from leeward Oahu; Honolulu harbor. *S. incisum* Dickie.; known only from leeward Oahu; Honolulu harbor. *S. echinocarpum* J. Ag.; recorded only from Hawai'i and Fiji. *S. cymosum* Ag.; widely distributed in the Atlantic and Pacific. These are all known as limu kala by the natives, and are used for food. Miss Reed states "Perhaps the limus most abundant and widely distributed over the islands are the various kinds of limu kala. . . ." They grow in the shallow waters along the reefs, on stones and submerged ledges, and on the reef itself. In many regions, ex. the leeward coast of Oahu, they are very much more abundant than any other seaweed. Miss Reed describes the native uses of limu kala as follows:

"Limu kala is sometimes broken into small pieces and soaked in fresh water until it turns dark and soft, then stuffed into salmon before it is roasted, or it is chopped with fish heads and salt. Again it is sometimes ripened by putting in water with a few mollusks called leho, salted slightly, and allowed to stand several days before eating. Limu kala is more often than any other limu eaten on the beach, without any preparation other than rinsing off the sand and breaking into convenient pieces for eating with raw fish or squid. It is also sometimes put into meat gravies or stews just as it is served."

CLASS DICTYOTALES.

I. DICTYOTACEAE.

A family of ten or more genera, confined largely to the warm oceans of the world. Four Hawai'ian genera.

1. *Styopodium*.

Monotypic; frond at first decumbent, later ascending. *S. lobatum* Kuetz.; collected at Laysan, flabellate, palmatifid or lobate, concentrically zoned; in many parts of Pacific and Atlantic.

2. *Padina*.

A cosmopolitan genus of nine species; fronds flat, flabellate entire or multifid; zonate. *P. Commersonii* Bory; in shallow water within the lagoons along the reefs; widely distributed in Pacific and Atlantic. *P. Pavonia* (L.) Gaill.; abundant along the coral reefs, in pools and lagoons; often growing where the water is distinctly muddy and brackish; gregarious and forming extensive colonies; widely distributed in Pacific and Atlantic.

3. *Haliseris*.

A genus of 17 species, widely distributed; fronds flat, costate, dichotomous. *H. plagiogramma* Mont.; grows far out on the outer margin of the coral reefs, where the heavy surf breaks, in rather deep water; also in other tropical and subtropical waters of the Atlantic and Pacific, ex. West Indies and Australia; fronds slender, 12-14 cm. tall. It can usually be gathered only by diving or swimming, but grows here and there in small quantities on all the

islands. It is a great favorite among the natives, who call it limu lipoa. Reed states "Limu lipoa is very often pounded and mixed with other seaweeds to give them its peculiar penetrating, spicy flavor and odor. It is frequently served with meats or put into the gravy or stews to give them a peppery flavor, of which the Hawai'ians are very fond. All Hawai'ians like the odor and flavor of this alga, especially with raw fish. It is considered particularly delicious with raw flying fish, if simply broken and salted slightly." *H. pardalis* Harv.; a very rare species, occasionally washed ashore after storms; also occurs in Australian waters; fronds linear, dichotomous.

4. Dictyota.

A cosmopolitan genus of 45 species, chiefly in warm oceans; fronds flat, dichotomous. *D. acutiloba* J. Ag. and var. *distorta* J. Ag.; recorded only from the Hawai'ian Islands. *D. sandvicensis* Soud.-Kuetz.; also in Australian waters, Red Sea, and Indian Ocean. *D. spinulosa* Harv.; various parts of the North Pacific. *D. dichotoma* (Huds.) Lamx.; widely distributed in all oceans. These are all called limu alani but are seldom used for food by the natives, as they are bitter.

II. ATHROCLADIACEAE.

An obscure family of perhaps two genera, widely distributed; fronds filiform, repeatedly branched.

1. Chonospora.

A genus of uncertain position, with about four species; fronds cylindric-compressed, repeatedly dichotomous. *C. pannosa* J. Ag.; fronds in a dense caespitose tangle, blackish, 6-10 cm. high, much-branched and interwoven; reported only from the Hawai'ian Islands. *C. fastigiata pacifica* J. Ag.; called by the natives limu wa-wahi-wa'a or limu kau-pau, and used by them as food; occurs in various parts of the Pacific, ex. Mexican waters, and also along the Atlantic shores of S. America. Fronds caespitose with numerous dichotomously-branched fastigate branches, color dark olive.

CLASS RHODOPHYCEAE: THE RED ALGAE.

I. BANGIACEAE.

A family of chiefly marine species, a few (*Bangia*) inhabiting fresh water; the marine species, altho widely distributed, are most abundant in warm and tropical oceans. Four genera, of which one occurs in Hawai'ian waters.

1. Porphyra.

A genus of about twenty species, of a gelatinous texture, mostly colored a beautiful purple; often growing in colonies; occurs in all the oceans. *P. leucosticta* Thuret; this is the famous limu lua'u of the natives, a very highly prized delicacy. Miss Reed states that it "appears in winter or spring after heavy storms and lasts for only a few days. It is found on bold exposed rocks constantly dashed by waves, so it is difficult and dangerous to collect it, especially as it is extremely slippery and has to be scraped forcibly from the rocks in small bunches while the collector clings to his support and avoids the heavy waves. He must be sure-footed, quick, and a strong swimmer, if he collect limu lua'u. . . .

It is "prepared by washing in the usual way in fresh water. It is then salted a little and put into clear water, where it becomes slippery and colors the water a lovely violet color. Sometimes opihi, a kind of limpet or mollusk, is put in with the limu and salt and water and placed in bottles or jars. This is used as needed, for it keeps many weeks when placed in the weak brine with the limpets. Limu lua'u is considered a great delicacy in the few localities where it occurs, but it lasts so short a season, is so scarce, and so difficult to get that it is not very widely known. Only on northern Kaua'i, northern Maui, and northern Hawai'i is it in use or in great favor, as it does not occur in other places, except a few scattered plants on Moloka'i and Oahu. It grows only on the most exposed and slippery rocks, and disappears in a few days after the stormy weather subsides not to reappear until the next season immediately after the heavy winds. Therefore thus much-prized limu is always most difficult to obtain even in very small quantities."

II. HELMINTHOCLADIACEAE.

A family of ten genera, in fresh and salt waters, chiefly characteristic of tropical and subtropical seas.

1. Liagora.

A genus of about 35 species, chiefly tropical; often calcareous. *L. valida* Harv.; collected at Laysan; also occurs in the Atlantic, and around Madagascar. *L. coarctata* Zanard; collected at Laysan. *L. decussata* Mont.; called limu pu-aki by the natives, and considered edible; growing along the coral reefs in quiet shallow water, often in mud or sand or on small stones; fronds filiform, virgate-ramified, calcareous.

III. CHAETANGIACEAE.

A family of five genera, characteristic of warm seas.

..1. Galaxaura.

A genus of over 20 species, in tropical seas; fronds cylindric or compressed, sub-tubular, incrustated with lime. *G. lapidescens* (Soland) Lamx.; along the coral reefs in shallow waters; a common species in warm seas. *G. spongiosa* Kuetz.; habitat as for the preceding.

2. Scinaia.

A genus of 4-6 species, (exact number unknown), in tropical seas; fronds cylindric, gelatinous-membranous, dichotomous. *S. furcellata* (Turn.) Biv.; and var. *undulata* (Mont.) J. Ag.; fronds solitary or clustered, arising from a disk-like base, several times dichotomous; cosmopolitan with several varieties.

3. Actinotrichia.

A monotypic genus, in the Pacific and Indian Oceans; fronds round, furcate racemose, more or less indurated with lime. *A. rigida* (Lamx.) Descne; widely distributed in the Pacific, Indian and Red Sea.

IV. GELIDIACEAE.

A cosmopolitan family of fifteen or more genera, abundant in tropical and subtropical seas.

1. Gelidium.

A large genus of about 30 species most abundant in tropical waters; fronds pinnatifid. *G. attenuatum*; not listed in De Toni;

probably a synonym. *G. corneum*; not listed in De Toni; probably a synonym. *G. felicinum* Bory; restricted to the Pacific Ocean. *G. intricatum* (J. Ag.) Kuetz. According to De Toni an obscure species. *G. latifolium* Born.; cosmopolitan; abundant in Atlantic and Adriatic. *G. cartilagineum* (L.) Gaill.; in the Pacific and Atlantic Oceans. *G. pusillum* (Stackh.) Le Jol.; a cosmopolitan species. These are all called limu loloa,—sometimes limu ekaha-kaha, by the natives, and are extensively used as food. They grow on exposed black lava rocks near the tide line, in rough water where they are constantly washed by the surf. They have tenacious holdfasts, and require a knife or chisel for collecting. These algae are abundant along the rocky shores of Kaua'i, Oahu, and Moloka'i, and also occur in considerable quantities on the other islands. They produce a dark, viscid gelatine strongly flavored, but suitable for glue-manufacture. Reed states, "Our species of *Gelidium* are undoubtedly as gelatinous as the Japanese species, but they are not nearly so plentiful."

2. *Wrangelia*.

A genus of about 25 species, in warm oceans of both hemispheres; fronds erect, terete-filiform; branched. *W. penicillata* Ag.; this beautiful, delicate, olive-green, fern-like species inhabits tidal pools along the coral reefs and rocky shores; a cosmopolitan species.

3. *Pterocladia*.

A small genus of two or three species, known only from warm parts of the Pacific; fronds repeatedly pinnatifid. *P. capillacea* (Gmel.) Bornet; uncommon; used by the natives of Kaua'i and Maui, and known by them as Limu loloa; occurs also in Mediterranean and Atlantic.

IV. GIGARTINACEAE.

A large cosmopolitan family of 18 genera, inhabiting all the oceans.

1. *Gigartina*.

A widely distributed genus of over sixty species; fronds fleshy gelatinous, variously ramified. *G. papillata* (Ag.) J. Ag.; frond flat, simple or sparingly dichotomous, segments truncate-cuneate; recorded only from Hawaiian Islands and the Golden Gate.

2. *Gymnogongrus*.

A widely distributed genus of over forty species; fronds fleshy-coriaceous or horny, terete or flat, repeatedly forked. *G. vermicularis americana* J. Ag.; a cosmopolitan species. *G. disciplinaris* (Bory) J. Ag.; recorded from various parts of the Pacific. These algae are generally called limu ua-ua-loli by the natives, but there are also a number of other local names: Limu ekaha-kaha, limu ko-ele-ele, limu awiki-wiki, limu nei. They grow far out on the coral reefs, along the outer margin where the surf is heavy. All have tough, strong holdfasts. They are most abundant on Maui and Moloka'i, and are rather scarce on Hawai'i.

Ahnfeltia.

A genus of five or more species, cosmopolitan in range; fronds fleshy, wiry, or horny, round, irregularly branched. *A. concinna* J. Ag.; native name limu aki-aki or limu eleau. A succulent, brittle, brownish-red alga, abundant on partially submerged lava rocks along the coasts. It shows a preference for exposed black lava rocks, in rough water, where it receives the heavy surf. It occurs in large

quantities in these habitats along the shores of Kaua'i, Oahu, and Hawai'i, and is plentiful here and there in a few localities on the other islands. Sometimes it grows in quiet coves or behind the lava rocks, in less exposed places. This seaweed is relished by the natives and is commonly sold in the markets. Its air-dry composition is, roughly,—water 20%, protein 5%, starches, sugars, etc., 55%, crude fiber 3%, ash 15%. In the fineness and clarity of its gelatine this alga is exceeded only by *Gracilaria coronopifolia*. A. Durvillaei (Bory) J. Ag.; recorded from various parts of the Pacific.

V. RHODOPHYLLIDACEAE.

A large cosmopolitan family of 23 or more genera.

1. Eucheuma.

A tropical and subtropical genus of about 15 species most of them occurring in the Indian Ocean; fronds fleshy-cartilaginous, pappilose. *E. nudum* J. Ag.; frond terete, subcompressed, dichotomously branched; recorded only from the North Pacific.

VI. SPHAEROCOCCACEAE.

A family characteristic of the warm and tropical oceans, but also occurring in other seas; about twenty genera.

1. Sphaerococcus.

A small genus in the warm parts of the Atlantic and Pacific Oceans; fronds membranous-cartilaginous, caespitose. *S. coronopifolius* (Good. & Wood) Ag.; fronds dichotomously branched; occurs in many parts of the Atlantic and Pacific.

2. Gracilaria.

A cosmopolitan genus of about fifty species, including many beautiful forms. *G. coronopifolia* J. Ag.; this species is called limu manau-ea, and is extensively used for food by the Hawai'ians. It grows in shallow water along the coral reefs, on sandy bottoms, and in stormy weather often drifts ashore in considerable quantities. It is plentiful along the low shallow beaches of leeward Kaua'i, Oahu, and Moloka'i. Because of the less favorable coasts, it is not abundant on Maui, and less so on Hawai'i. The season of greatest abundance is spring and early summer, altho it is fairly plentiful thruout the year. This is one of the limus commonly offered for sale in the native fishmarkets. Its air-dry composition is, roughly: 12% water, 8% protein, 58% starches, sugars, etc., 3% crude fiber, and 17% ash. Limu manau-ea makes fine clear gelatine of excellent quality, and requires less cooking for its preparation than do the other algae. Reed states "*Gracilaria coronopifolia* is particularly rich in gelatin of the best quality suitable for food, and it also occurs in considerable quantities on all the islands but Hawai'i." *G. confervoides* (L.) Bory.; widely distributed in all oceans; fronds, long, terete, much branched.

3. Hypnea.

A genus of about 30 species, in all tropical and subtropical seas; fronds filiform, virgately-branched, with subulate branchlets. *H. nidifica* J. Ag.; intricately caespitose, expanded; known only from the Pacific Ocean. *H. armata* (Mert.) J. Ag.; elongate, corymbiferously branched. These algae are known to the Hawai'ians as limu hana

and are among the most commonly eaten of the Hawai'ian seaweeds. They are especially relished when boiled with octopus. They grow along the coral reef in the shallow water, and often drift ashore in considerable quantities. *Hypnea* is very abundant on the sandy leeward shores of Oahu, Kaua'i, and Moloka'i; it is scarce on Maui, and very rare on Hawai'i. It is outranked by both *Gracilaria* and *Ahnfeltia* in the quality and quantity of its gelatine.

VII. RHODOMENIACEAE.

A large cosmopolitan family, with 17 genera.

1. *Plocamium*.

A large cosmopolitan genus of about thirty species; fronds membranous-cartilaginous, pinnately decompound; some very beautiful species. *P. Sandvicense* J. Ag.; known only from the Hawai'ian Islands; leeward shores of Oahu.

2. *Champia*.

A genus of about ten species, widely dispersed in warm and tropical seas; fronds branched, tubular, nodose, purple, gelatinous, membranous. *C. compressa* Harv.; known to the Hawai'ians as limu o-olu. It grows in shallow water along the coral reefs, both near the shore and further out in sandy places. It is not plentiful, however, and its distribution is very irregular. Also in South Pacific and African waters.

3. *Chylocladia*.

A genus of about ten species, in warm and tropical seas. *C. rigens* (Ag.) J. Ag.; according to Reed an edible species, called limu akulla or limu kihe by the Hawai'ians; in many parts of the Atlantic and Pacific.

VIII. DELESSERIACEAE.

A large cosmopolitan family of twenty genera, many species inhabiting warm and tropical seas.

1. *Martensia*.

A genus of seven species, in tropical seas: fronds flat, dichotomous, with excentric subimbricate lobes. *M. flabelliformis* Harv.; plentiful in shallow waters along the coral reefs; also recorded from Samoa.

IX. BONNEMAISONIACEAE.

A family of six genera, inhabiting warm and tropical seas.

1. *Asparagopsis*.

A genus of three species, characteristic of tropical regions fronds penicillately branched, very fine and delicate. *A. Sanfordiana* Harv.; a very delicate plant, resembling a miniature pink conifer. It grows far out along the margins of the coral reefs, in shallow water where the surf breaks. It has a variety of Hawai'ian names, limu kohu being the most common. On Maui, Moloka'i, and Kaua'i it is often called limu lipa-akai or limu lipehu. Reed makes the following statement concerning its use by the natives: "Limu kohu is always pounded well as it is being cleaned to free it from adhering bits of coral, and also so that it may be soaked more thoroughly to remove the disagreeable bitter flavor. It is soaked twenty-four hours or more in fresh water, to remove the bitter iodine flavor. It is then salted ready to be served as a relish or salad with meats,

fish, or poi, or it is mixed with other seaweeds and put into hot gravy and meat stews, just as many other limus are eaten. Limu kohu has a rather pleasant flavor, though it is slightly bitter even after soaking twenty-four hours. It is always found in the market made into balls about the size of a large baseball and heaped upon large plates. It sells at 25 cents per ball and is always in great demand."

Reed also describes an interesting cultivation of this alga by some of the natives: "The writer was much surprised to learn that a rude kind of cultivation of the much-prized limu kohu was practiced at Moloa'a, on Kaua'i. Here limu kohu grows very luxuriantly over the entire reef, and is the finest in color and flavor found on this group of islands. There is a small cove just beyond Moloa'a Bay to the northward, which is partly protected from the heavy trade winds and southerly storms by bold, rocky bluffs or headlands. The coral reef extends from the shore out perhaps half a mile and beyond the headlands, so that the whole cove has rather shallow water. The coral rock, the usual haunt of the limu kohu, is in this place somewhat protected from storms, so the natives can gather this limu almost any time of the year, at low tide, without danger from heavy breakers. The Hawai'ians living at Moloa'a gather limu kohu for the Honolulu market regularly, making a nice little income from its sale, as they furnish the larger share of the supply. It is here that these limu gatherers have attempted to increase their sales by caring for their seaweed to the extent of weeding out all the other algae and thus no doubt, increasing the quality and quantity of limu kohu which here is so much finer and more luxuriant than any other place."

X. RHODOMELACEAE.

A very large cosmopolitan family of seventy or more genera.

1. Laurencia.

A large genus of nearly sixty species, very variable; mainly in tropical and subtropical seas. *L. nidifica* J. Ag.; reported only from the Hawai'ian Islands. *L. papillosa* (Forst.) Grev.; widely distributed in all seas. *L. obtusa* (Huds.) Lamx.; widely distributed in all seas. *L. vaga* Kuetz.; according to De Toni probably a form of *perforata*. *L. pinnatifida* (Gmel.) Lam. and var. *osmunda*. *L. perforata* Mont.; in the tropical Atlantic and Pacific. *L. virgata* (Ag.) J. Ag.; in Pacific and African waters.

These species are known to the Hawai'ians by various names,—limu ma-neo-neo for the shorter, coarser species, limu li-pee-pee for the finer, longer forms. Limu lipee is a contracted word; limu li-puu-puu a name used locally in certain districts on Hawai'i and Maui. The Laurencias grow in shallow water along the coral reefs, either on sandy bottom, or in rocky places. They are frequently washed ashore in considerable quantities by high tides or stormy weather. The Hawai'ians use all the species for food, and the prepared limu may be purchased in the fish markets.

2. Chondria.

A genus of about 25 species, largely confined to warm oceans; our species also occurs in the Atlantic, Indian, and South Pacific. *C. tenuissima* var. *intermedia* Grun.; called limu o-olu by the natives, who used it for food. Abundant in the broad, shallow, sandy-bottomed shore waters of leeward Kaua'i, Oahu, and Moloka'i; easily

gathered. It prefers quiet water, and rarely grows in places exposed to the surf. Commonly offered for sale in the fish markets.

3. *Polysiphonia*.

A very large genus of perhaps 150 species, cosmopolitan in range. *P. Tongatensis* Harv.; according to De Toni probably a synonym for *mollis*. *P. polyphysa* Kuetz.; according to De Toni probably a synonym for *ferulacea*. *P. ferulacea* Suhr.; widely distributed in all oceans. *P. mollis* Hook & Harv.; called limu pu-alu or limu hawane by the natives; it is not popular, and is used by but few natives for food.

4. *Amansia*.

A genus of 8 or 10 species, in warm and tropical seas, fronds flat, erect, membranous, pinnately branched or highly ramified. *A. glomerata* Ag.; the beautiful dark red rosettes of this alga are to be found in deep shady holes and crevices in the coral reefs in moderately shallow water. This species is called limu li-pepe-iao or limu pepe-iao by the Hawaiians, who use it for food.

XI. CERAMIACEAE.

A very large family of forty or more genera, widely dispersed but most abundant in warm and tropical seas.

1. *Griffithsia*.

A genus of about 30 species, most abundant in tropical seas; fronds erect, filiform, branched, articulate; two kinds of branches. *G. ovalis* Harv.?; a very scarce species; used for food on Maui and southern Hawai'i; called limu moo-puna, limu ka-lipoa, and limu au-pupu.

2. *Ceramium*.

A large and widely distributed genus of at least 65 species; filaments branching, of a single row of cells, nodes with corticular bands. *C. clavulatum* Ag.; known by a variety of native names,—limu hulu-ilio, limu hulu, and limu hulu wawae-iolo. Abundant in shallow waters within the coral reefs, growing on the sandy bottom and on rocks; easily gathered. *C. Kuetzingianum* Grun.; fronds minute, thin, branched, epiphytic on other seaweeds; also occurs in the South Pacific.

XII. GRATELOUPIACEAE.

A family of 13 or more genera, characteristic of warm and tropical seas.

1. *Halymenia*.

A genus of 15-20 species, in warm and tropic seas. *H. formosa* Harv.; rare; native name limu pepe-ahina; fronds gelatinous, flat, stipitate, much branched; also in S. Pacific.

2. *Grateloupia*.

A genus of about forty species, widely dispersed in warm and tropical seas. *G. filicina* (Wulf.) Ag.; abundant in shallow water within the coral reef, on sandy bottom and on rocks. Known to the Hawaiians as limu paka-ele-awa'a or limu hulu-hulu-waena. The former name is used exclusively on Kaua'i, the latter on Hawai'i; both names are used on the intermediate islands. This alga also occurs in many other seas.

XIII. SQUAMARIACEAE.

A family of eight genera, occurring in all the oceans.

1. *Peyssonnelia*.

A genus of about 20 species, most abundant in warm and tropical seas; frond expanded horizontally, entire or margin variously torn; attached on the under surface, often crustaceous. *P. rubra* Decne.; in shallow water along the coral reefs, with such algae as *Halimeda opuntia*; adherent to the substratum; somewhat calcareous; in many other seas.

XIV. CORALLINACEAE.

A cosmopolitan family of nine genera, most abundant in warm oceans; rose-colored or purple, foliaceous or filiform, jointed, or inarticulate, calcareous.

1. *Mastophora*.

A genus of five species, confined to warm oceans. *M. tenuis*. Descne.; reported only from the Hawai'ian Islands.

2. *Amphiroa*.

A genus of about thirty species, largely confined to warm seas. *A. fragilissima* (L.) Lamx.; collected at Laysan, also abundant in Indian Ocean, and along the shores of Peru.

3. *Corallina*.

A large genus of about 50 species, cosmopolitan in range, but mostly tropical; fronds erect, filiform, articulate, branches opposite. *C. Sandvicensis* Reinbold; collected at Laysan; fronds 4-5 cm. high; known only from Laysan.

RETROSPECT FOR 1917.

SUMMARIZED CONDITIONS.

ANOTHER period of review of Hawaii's progress devolves upon us, and looking back upon the leading events and activities of the year we are impressed with the strenuousness that has marked the spirit of the times. The year has been crowded with various weighty problems, not a few of them new experiences on account of the world war (as will be seen under the various subject headings following), all of which are being met and dealt with in a spirit of courageous patriotism.

Civic questions dealing with community life are problems that confront the public from time to time, which this year was fought vigorously, and it was hoped effectively, through legislative aid with a carefully prepared "Abatement Act",

but in this, right did not triumph, and hope is deferred. The movement led, however, to a new philanthropic effort which is proving its value.

Though an outpost far removed from the European carnage, yet Hawaii is, and has long been, an active participant by contributions for relief work and in volunteers, but more particularly since America's declaration of war with Germany, in April, have we realized its far-reaching effects. The soaring price of all commodities; the difficulties of securing long ordered supplies; the commandeering and withdrawal of the largest and best steamers, and restriction of freight are hardships to an isolated island community which is taxing the effort of our leading men to solve.

Prosperous conditions have attended our sugar and fruit industries, both in production and market realization for the year, which has insured a continuance of the commercial and building activities noted the preceding year. This has enabled Hawaii to share nobly in the financial calls upon her in the two Liberty loans, the Red Cross drive, and other war and philanthropic demands during the year. Registration throughout the territory for the war and the subsequent draft was carried out with remarkable smoothness, especially considering our cosmopolitanism.

WEATHER.

Following an average winter's rains, ending 1916, a heavy rain storm swept Oahu March 19th, doing damage throughout the island to roads and bridges estimated at \$75,000, and that of Honolulu at \$10,000. Rainfall for 24 hours at 8 a. m. of the 20th in the city, was 13.36 inches. Kauai shared in the storm somewhat, but not to any material damage. Apart from this, rains throughout the islands have been far below normal. Windward Hawaii and parts of Maui report experiencing a spell of drought the like of which has not occurred since 1897. In some sections fields of young cane have been sun-burnt dead, which, with other drought damage

on various plantations will tell seriously on the sugar crops for the next two years. Southern Hawaii had a rare hailstorm on two occasions in May.

POLITICAL.

According to law the territory is privileged to enjoy(?) perpetual political commotion through its annual elections, one year being for legislative honors and the next for County. This year it was the latter's turn to be served by primaries and general election campaigns. The primary election for City and County of Honolulu drew out some fifty self-sacrificing citizens for political slaughter, about half of whom were invited to stay home. At the final test, June 5th, to the surprise of many, former Mayor, Joseph Fern (Dem.), won back his position. Sheriff Rose and Auditor Bicknell were reelected over strong opposition. Of the Supervisors, Petrie, Hollinger and McClellan were returned again, the new members being E. A. Mott-Smith, Wm. Ahia, Chas. Arnold and Chas. Bellina.

Maui practically reelected their entire staff of officials, and Kauai made little change. Hawaii, however, was not so complaisant, but not all the changes aimed at were acceptable to the voters.

FINANCIAL CAMPAIGNS.

Never before in the history of these islands has Honolulu had such a year of campaigns as has assailed her citizens in this year of our Lord, 1917. First in importance is the Liberty loan, the first campaign, in June, securing \$4,857,850, a sum considerably over what had been estimated would be Hawaii's share, and the second, in October, securing \$8,060,800, again overrunning her allotment \$5,060,800. These figures cover all the islands, and include the subscriptions of the army in Hawaii, which was \$1,269,150. The Red Cross drive of September on this and the other islands was but an emphasis of what has been in progress for this worthy cause since the war in Europe began, and is being augmented by the

monthly subscriptions as paid in. Up to the end of October the War Relief and Red Cross fund forwarded had reached the sum of \$233,291.25. To this is to be added the Belgium relief fund, which has netted over \$10,000; the Joffre fund for orphans; Empire day campaign, as also the Red Cross (formerly War Relief) work, which has engaged the energies of noble women throughout the territory for many months, as is shown elsewhere in this issue.

The Y. W. C. A. carried through a \$17,000 campaign very successfully, for its better equipment, and a Waikiki beach adjunct.

The Y. M. C. A. launched a whirlwind campaign for funds for the purchase of the well-known Hawaiian Hotel property for an Army and Navy Y. M. C. A. headquarters, which called for a quarter million of dollars, toward which the International Army and Navy branch of the Y. M. C. A. of New York pledged \$75,000. The deal was carried through successfully and changes effected for its new purpose.

LEGISLATIVE.

The legislature for 1917 fulfilled legal requirements of convening and concluding its labors on time, but of the result, perhaps the least said the better, for the general feeling that prevailed was one of disappointment at the few good measures passed compared with the raft of questionable bills crowded into both houses throughout the session, a number of which became law. The good work of both houses may therefore be said to have been in saving us from many more like them by smothering them in committee, or tabling them at the ninth hour.

It is noticeable the low conception of moral ideas possessed by several members of the lower house in failing to support the senate in the abatement measure; lacking courage on the liquor question (as too many senators also were), and letting down the bars further for Sunday desecration.

A grave misconception of one's legislative duty was made apparent in the large number of bills presented already covered by the statutes, or recently rejected. One would-be wise-acre inflicted the session with no less than fifty-five bills, only one of which became law—a loss of time and useless waste of paper and printing, all of which was taxpayer's money. Another member's frequent bills and resolutions seemed based on the idea that his district had first claim on public lands and appropriations.

The great number of bills presented, assigned to the various committees, overwork conscientious chairmen, or give ground for clerical or other aid to important committees for the session, and at figures far in excess of those prevailing for like services in business circles. This same holds true in the pay of attending officers, messengers, janitors, etc. In this way the legislature is lending encouragement to graft within its own walls, where it should be the careful guardian of the public purse.

The session closed with 161 acts signed, and one passed over veto, at an expense of \$84,105.76, of which \$27,272.67 was from federal funds.

PUBLIC IMPROVEMENTS.

The most important project under this head under way is the concrete pier work, mentioned in last ANNUAL, which extends from Alakea street, pier No. 7, around the corner of the Esplanade to include the Oceanic wharf, pier No. 10. This work promises well for future needs of the port. It is not yet far enough along for the start of its planned concrete sheds.

Oahu prison, at Kalihi, is still in progress, delays in the arrival of material being largely responsible for its present incomplete status. The Insane asylum has been equipped with a therapeutic building and three additional cottages, which add materially to the efficiency of the institution for the care and comforts of its unfortunate inmates.

The moving of Davies & Co.'s three-story brick warehouse, on the Esplanade, contemplates the opening up of Bishop street to the water front. Street work is unceasing in its demands. At completion of Kalakaua avenue improvement, attention was given to Beretania street to the delight of motorists. Smith street has been cut through to Queen. Manoa road work is practically finished, as is also the Pali road, but beyond that little can be said.

Hilo breakwater is nearing completion of its second section, and work is begun on Kahului's new western arm, for the better protection of its port, for which \$250,000 was appropriated. The Inter-Island Co.'s coaling station is completed. A number of projects are in prospect which will be dealt with in due time.

HAWAII'S INTERNED FLEET.

Hawaii faced a new experience in February last as the strained relations between Germany and the United States were becoming tense, on finding that all the German refugee vessels in the harbor were being systematically damaged in their boilers and machinery. This concerted action had been in progress several days before suspicions gave place to tangible evidence of destructive activities transpiring on the gunboat *Geier*, and the large steamers *Holsatia*, *Setos*, *Pommern*, and *Prinz Waldemar* and others lying at their several piers, on the morning of the 5th, Sunday, when fire was discerned on the gunboat. The federal authorities then stepped in and took charge of affairs and placed a military guard around the piers. Prompt action saved the *Geier* from destruction at her dock. A number of men were placed under arrest, others were taken charge of by the immigration authorities, or interned at the army posts, and the various ships put under customs guard. Captain Grasshof surrendered his charge to Commander Hart of the submarine flotilla.

Everyone of the interned vessels, it was found, had been put out of commission, some seriously so. The damaged fleet,

and their tonnage, was as follows: Gunboat *Geier*; steamships *Pommern*, 4086; *Holsatia*, 3540; *Setos*, 3084; *Prinz Waldemar*, 1737; *Longmoon*, 1245; *Straatssekretar Kraetke*, 1208; *Gouverneur Jaeschke*, 1045, and schooner *Hermes*, 115. In addition was the steamship *O. J. D. Ahlers*, at Hilo, of 4736 tons, likewise internally injured. Later, on war being declared between the two nations, these interned ships became United States property and were repaired here, or towed to San Francisco to be rendered fit for service. The *Geier* as U. S. gunboat *Carl Schurz*, is at Pearl Harbor, the merchantmen, all under new names and flag, have found ready charterers and are sailing the seas.

CARNIVAL SEASON.

We have come to look upon the week in which Washington's birthday occurs as Carnival Season, the due observance of which demands much planning by men and women of experience and influence many months in advance. To the various committees and their faithful corps of co-workers in this behalf is due the success of our 1917 Carnival, which in most of its features was on a much larger and more elaborate scale than any of its predecessors, and the jovial spirit was manifest throughout the full week's events.

The islands were favored also with many more season's visitors than usual, all liners, including the big Hill steamships, for several trips being taxed to their capacity, and but for the war-cloud then darkening the horizon (which caused many timid folk to shorten their stay and hasten home), the record tourist season would have resulted better still.

The events in their daily order were as follows:

Monday, 19th. Pan-Pacific Pageant through the principal streets during the afternoon, comprising thirty-nine characteristic Hawaiian, and some fifty Pan-Pacific floats, all of which showed the master mind and hand of Alex. Hume Ford. In the evening was the Ball of All Nations at the Capitol grounds, at which the obnoxious hula was intruded.

Tuesday's events were interfered with by rain, save the "Night in Hawaii" in the evening at the Bijou theatre, comprising scenes, music and dances entirely Hawaiian in character and attraction.

Wednesday, 21st. Hawaiian Pageant at Kapiolani Park, postponed from the 20th at 3 p. m., enacting the romance of Iwikaikaua, prince of Hawaii, illustrative of court life, sports and customs of a century ago. At noon the Hibiscus exhibit opened at the Pan-Pacific pavilion, Bishop street.

Thursday, 22nd. "The day we celebrate." At 9:30 a. m. Army parade through the main streets (credited as the largest held anywhere in the United States), with military review at the Capitol grounds. Swimming meet at the foot of Alakea street took place at 1:30, and in the evening the Japanese lantern parade through main streets, followed by a masked ball at the armory.

Friday, 23rd. Children's festival at Punahou grounds, opening at 1:30, of chorus singing by a thousand voices, interspersed with dances.

Saturday, 24th. Another swimming contest took place, winding up in the evening with a Water Pageant in the harbor of some fifty decorated and illuminated craft, and closing with an exhibition of fireworks.

Some former carnival features were missing this year, but the week was strenuous enough with the carrying out of the above program, to which must be added the very creditable exhibit of dioramas by local and visiting artists of a number of the most striking Hawaiian scenic views, which held a prominent place in the Pan-Pacific pavilion, opposite the Young Hotel, during and following the Hibiscus exhibit.

Aala Park blazed forth nightly with various allurements by money-making side-shows, not of the Carnival committee program, but seeking to profit by its public-spirited service.

REALTY CONDITIONS.

Among the more important land transactions has been the sale of the island of Lanai to F. F. and H. A. Baldwin for \$588,000, for a cattle ranch, and the Hawaiian Hotel property for an Army and Navy Y. M. C. A. at \$250,000; and the building will be remodeled to meet its new requirements at a cost of \$25,000.

The Hawaiian Electric Co. have secured two Esplanade lots adjoining them, for \$70,000, for the erection of an auxiliary power house; the Telephone Co. have bought from the Y. M. C. A. a frontage on Alakea St. for an extension of their present plant; the Edinburg property on Queen St. adjoining Hackfeld & Co. has changed hands at a good figure, as has also the Aldrich premises on Hotel St., said to be at \$75,000, and the Harrison property on Alakea St. next to Catton Neill's at \$30,000. On Kaahumanu St. a lot on which the last wooden building in the business center of the city stood (relic of early days), has been secured by the Bishop Estate for the erection of an office building.

Ainahau, once offered the territory for a memorial park, for its up-keep, has been sold and subdivided into residence lots which are finding ready buyers. Beach properties are attracting more and more attention each year and various tracts are being put on the market, subdivided for summer residence lots.

The real estate transfers for the past year ending Oct. 30th, show a very healthy tone, as there have been few foreclosures, only an average percentage of mortgages, and no serious fluctuations in values in any part of the territory. The volume of business has exceeded all previous years and was quite appreciably larger than last year, which up to that time, was the banner year, by a large margin.

Rates of interest are favorable to the home builder and indications all point to a continuance of heavy business in realty.

A point worthy of notice in registry affairs, is the steady, almost rapid, manner in which land titles are coming under the Land Court Act, commonly called the Torrens' Title system. Over one thousand certificates of title have been issued thus far, and many tracts of land are awaiting original registration.

BUILDING NOTES.

In spite of the higher cost of materials, the difficulty and delay in obtaining supplies, as also the heavy financial drain upon the community, there has been remarkable building activity during the year which has been general throughout the islands, and notably so in Hilo.

In Honolulu business section is to be noted a large new building in course of erection, corner of Fort and Hotel, to join the Campbell building, whose front is likewise being modernized to agree therewith. The store front changes just completed on the Brewer building, on the opposite side of Fort St., from the corner of Hotel to the Boston building, is a timely improvement to accord with the enlarged up-to-date store of Ehlers & Co. in the vicinity.

A large two-story concrete business block is going up at the corner of Nuuanu and King. Love's new two-story building on site of their old stand, Nuuanu St., is finished, as is also the fine Hotel St. addition to the Young Hotel. The two wing additions to the Moana Hotel, much delayed for needed supplies, is progressing toward completion. The same may be said of the sub-station of the Mutual Telephone Co., which they are erecting at Kalihi, and a large two-story concrete building at the corner of Richard and Hotel Sts. for the Royal Hawaiian Garage Co.

Residences are cropping up around the city rather than in it, T. A. Cooke, C. G. Bockus and F. B. Damon, Nuuanu; C. S. Judd, R. C. Brown, G. K. Larrison, Dr. A. N. Sinclair, Mr. Lightfoot, Geo. Kluegel, F. S. Midkiff, Dr. J. T. Wayson, Manoa; J. H. Lewis, J. M. Riggs, Mrs. E. Judd, Makiki

Heights, and C. W. C. Deering, Waikiki, being among the more prominent. The new parsonage of the Methodist church, Beretania St., built this year, harmonizes well with it, architecturally.

Places of worship have shared in the year's increase and improvement, notably: the Baldwin Memorial church, Paia, Maui, C. W. Dickey, architect, credited as the finest in the islands, was dedicated September 2nd; Hilo is erecting a new Catholic church, the St. Joseph's, to seat 800; E. A. Newcomb, its architect; at Laie, Oahu, a Mormon tabernacle is about finished, said to be a model of the famed Salt Lake structure. In this city the Christian Scientist church is building on Wilder avenue, corner of Kewalo St., to cost some \$60,000; the Kalihi Union church is completed, costing \$25,000; the Portuguese Protestant church has undergone enlargement, and the Kaluaaha (Molokai) church, one of the oldest in the islands, has been entirely renovated.

The Honwanji Buddhist Mission have erected a large temple on upper Fort St., which is now receiving its finishing touches awaiting its furnishings which will include an organ. The cost of the building is placed at \$70,000, and its equipment at \$30,000. A Buddhist temple of another sect, on Sheridan St., costing \$7,000, has recently been completed and dedicated.

A spacious two-story building is being erected at the corner of Fort and Vineyard, connected with the Japanese work of the Y. M. C. A. to cost \$30,275. The Salvation Army quarters in Manoa have completed their new building for their dependent young, and a Gospel Mission Home has been established in Palolo, by W. E. Pietsch, for fallen women, and for the care of children rescued from low tenements, a direct outcome of the anti-vice crusade.

LANDMARKS GONE.

In addition to the removal of old "Honolulu Hale", adjoining the post office, mentioned elsewhere, is the disap-

pearance of the last wooden structure in the business center of the city, the two-story building on Kaahumanu St., next to Schaefer & Co. This was originally the highest of Honolulu's buildings, a three-story structure, an importation in frame by Captain James Makee in 1850, and was erected by R. Coady & Co., ship chandlers and commission merchants, and for a time occupied by them. A. B. Howe, auctioneer and commission merchant, occupied the second floor about that same time. He was succeeded by Henry Sea. The lower story for several years was the auction room of John F. Colburn. The top floor was used many years by Captain J. M. Oat as a sail loft, and possibly others before him. The Chamber of Commerce used it awhile; public gatherings, and even theatricals occasionally held here. In 1873 the building was razed, the lower story being taken out and the structure lowered by jackscrews and refitted, since which time it has been largely used for offices and storage.

Mention is to be made also of the demolition of the Opera House, to make way for the long-talked-of Federal building. Its last use was an anti-vice mass meeting, March 4th, in support of the Abatement act before the legislature.

REGISTRATION AND DRAFT.

July 31st was Registration day throughout the territory, and the gathered accounts show Hawaii's patriotism while fulfilling the law, for but few slackers needed rounding up and proved an error of head and not of heart. By Counties the registration was as follows:

Oahu	citizens	4,714	aliens	7,608	total	12,322
Maul	"	1,048	"	2,631	"	3,679
Hawaii	"	1,605	"	5,542	"	7,147
Kauai	"	573	"	2,249	"	2,822
Totals	"	7,940	"	18,030	"	25,970

Draft day did not take place till November 1st, on which occasion the first quota for the selection of 300 each in the six districts of the islands were drawn, as Hawaii's first requisition.

KAMEHAMEHA DAY.

This year's observance of Hawaii's national holiday, June 11th, spent itself largely in elaborating on the annual parade of the native societies for the decorating of the Kamehameha statue, starting at 9 a. m. The literary exercises which followed were held in the Executive grounds, as usual. The English address was by Rev. A. Akana, and the Hawaiian by Rev. Wm. Kamau. Chas. E. King conducted the chorus singing of his societies.

An afternoon attraction, "The Festival of Pele," under the auspices of the Pan-Pacific Club, held forth on a section of the Ward's premises, King St., the apparent money scheme of which detracted from the merit of the project. The "sport of kings" and polo held sway at Kapiolani Park. An added feature of the Societies observance was the decoration of graves the day previous, Sunday.

MARINE CASUALTIES.

The I.-I. S. N. Co. have been unfortunate in steamer mishaps since our last issue. The *Kilauea*, on passage from Hilo to Lahaina Dec. 12, 1916, cracked her shaft but made her port safely. Thence to Honolulu she was towed by the *Claudine*. During thick heavy weather the *Noeau* went on the rocks off Makalawaena Point, N. Kona, at 2 a. m. of March 20th, and became a total wreck in spite of strenuous rescue effort. May 20th the *Hamakua*, of 646 tons and 550 h.p., took fire shortly after passing Makena on her way to Hawaii, causing an explosion, and sank off the Maui coast. The chief officer and the boatswain were killed. Others of the steamer's complement of men, thirty-seven in all, reached Keoneio, Maui, by boats after an hour's rowing.

An unknown wreck on Jarvis Island, with no living person visible, was reported here July 22nd by the S.S. *Waimarino*, en route to San Francisco.

The motor auxiliary bark *R. P. Rithet*, from Mahukona, with a full cargo of sugar for San Francisco, burned at sea about July 23rd in long. 146.02 w. and lat. 31.43 n. The crew of sixteen headed for Kauai in an open boat and reached Port Allen in safety after a ten day's voyage.

October 30th, the captain, officers and crew, fourteen in all, of the four-masted schooner *Churchill*, of San Francisco, 600 tons, were brought to port by a Maui and Honolulu fishing party on the sampan *Makaiwa*, found in distress on French Frigate Shoals October 26th, the vessel having struck heavily on the reef at 9 p. m. the night before and was rapidly going to pieces. A boat with seven men had been sent in the darkness to land some supplies, expecting to return for others but was nowhere to be seen. On rescuing the captain and remainder of his men with much difficulty through high seas, the vessel caught fire and was left to her destruction. Search was then made for the missing boat, which was found during the afternoon buffeting the seas in a vain endeavor to effect a landing. All were timely rescued and brought to port. The ship was en route to Seattle from Nukualofa, Tonga, with copra.

SHIPPING MATTERS.

S.S. *Maui*, the new addition to the Matson line, and sister ship to the *Masonia*, was given an ovation on her arrival at this port, April 13th, followed by a ball in the evening to Captain Matson and officers at the Moana. The steamer touching at Kahului on the 15th, en route to Hilo, the planting and mercantile interests at that port did honor to their island's namesake. Our elation at the provision of a steamer fleet meeting present-day requirements was of but short duration, for all the largest and best of the Matson steamers, as also the Hill steamships, have been commandeered for transport service in the Atlantic. In their place the *President* and *Governor* of the Pacific Coast S. S. Co. are to be put on the run here, and permits granted the *Columbia* and *Ecuador* of

the Pacific Mail line to serve us en route to and from the Orient.

The Holland S.S. *Vondel*, first of the Netherland Royal Mail service from Amsterdam, via the canal and San Francisco, to the East Indies, arrived March 26th. Two other steamships of the new line followed later.

Fifteen of the crew of Norwegian stmr. *Thor*, which foundered in a storm some 850 miles to the northward of the islands, arrived here in an open boat, Dec. 1st, after fourteen days' hardship and exposure, under charge of the mate. Another boat load of fifteen, in charge of the captain, was rescued by a passing steamer Nov. 22nd, name not reported.

NEW ENTERPRISES.

Led doubtless by the growing interest in sport fishing fostered by the Tuna club, mentioned in last ANNUAL, and following investigations at the opening of the year by coast capitalists for the establishment of a fish cannery, the Macfarlane Tuna Canning Co. quietly entered the field with a \$5,000 plant, establishing their cannery near the Union Feed Co. on Ala Moana, and making its first export shipment in May. Since then the California-Hawaiian Canning Co. is shaping itself for business in this same line at the corner of First and Cooke Sts., Kakaako.

Maui has established a very successful Cement Plant at Paia, after several years' investigations and tests. The product meets all local requirements, comparing favorably with the imported article, and promises to materially affect future imports.

Kona's tobacco-growing effort is much encouraged by conditions this year. Favorable weather has produced a vigorous growth, with large leaves, insuring a good crop which, with the outlook of a steady and high-priced market, promise good returns.

HONOLULU WATER SUPPLY.

Every once in awhile the residents of Honolulu awaken to the seriousness of its inadequate water supply. Given a fair rainfall we worry along without saying much, but let a dry season befall us to diminish our springs, or lack of summer showers to keep lawns and foliage alive, we voice aloud the alarming situation of a steadily lessening water supply for the spreading city with its increasing population.

At the last outburst of indignation at the "do nothing" attitude of the powers that be, some three years ago, a committee was appointed to look into the water supply conditions and advise as to sources for securing an adequate increase. In the meantime work on the Hillebrand Glen spring to augment the city's supply has been entered upon, but is not yet of service. Nothing has been done by the City and County government with the Commission's exhaustive report which was completed and handed in last June. The present condition of Nuuanu water alarms those depending thereon, and calling for the consideration of the health authorities, adds to the seriousness of the situation.

Schofield Barracks does things differently. They have constructed a large reservoir at the foot of Kolekole Pass, Waianae range, to supply them with pure water pumped up from the Kaukonahua Gulch. A filtration plant is to be included in the system, the estimated expense of which will be about \$60,000.

PLANTATION NOTES.

Many important changes are in progress in a number of the larger plantation mills and boiling houses. The electrical plant equipment of several concerns are to benefit by the success attending the introduction of this agent in the Hawaiian Commercial Co.'s mill. Paia's substantial improvements in plant and buildings are credited as "many and up-to-date". Oahu Sugar Co.'s enlargement of plant has progressed steadily

during their grinding season, whereby its capacity is increased 60%. Its mills are two units of 14 rollers each. The plant, too, will electrify for the coming crop.

The Olaa Sugar Co. has demonstrated the possibilities of bagasse for paper-making and has put in a plant for the manufacture of a special kind of paper for their own need, not for marketing. Doubtless this will lead to a new by-product industry, as outlined last year by R. Renton Hind.

Fire destroyed the boiling and engine houses of the Pepeekeo plantation, July 15th, the mill building narrowly escaping.

Drought has seriously affected the plantations of windward Hawaii and central Maui. In some sections lack of rain was experienced as early as February and has been the severest spell of drought in twenty years. This, while detrimental to this year's work, its seriousness is in the surely diminished crop of next year, estimated at one-sixth, and possibly affecting the year following.

Kukaiau Mill and Plantation have merged their interests and amalgamated with the Hamakua Mill Co. for the more economical possibilities in the management of the two properties, which adjoin; all grinding to be done by the Hamakua Mill.

Pioneer Mill Co.'s new Honokowai tunnel project to bring in a large body of water to their fields has been entered upon and is making good progress.

VOLCANO CHANGES.

Goddess Pele has been very gracious and attractive to the many visitors to her domain this year, and entrancing to the watchful scientists in their daily recording of her changeful moods. So far as known no year has presented such valuable opportunities to penetrate her secrets through volcanic study consequent upon these varying degrees of activity and at different elevations. Following a spell of subsidence in the early part of the year, the lava lake rose steadily in April and

progenitors of a new race. The journey proved too arduous as the party broke down from hunger and exposure, and were discovered by a stage driver who reported their plight to the police authorities of Kona who rescued the fanatics and took them to Waiohinu. Pele's catastrophe, which they hoped to avert, was to have occurred on Kamehameha day, June 11th.

CONGRESSIONAL VISITORS.

The territory is again honored by a Congressional visiting party, to acquaint themselves with the needs as well as the charms of Hawaii which are noised so much abroad these days. The party comprises five senators, eighteen representatives and several others, all of whom are learning Hawaii at first hand, including the usual land-woe tales, during their tour. They were welcomed officially on arrival; accorded a public reception at the Executive building and a ball at the armory in their honor. The visit to the volcano was startling and impressive, so much so as to promise aid in Prof. Jaggars's research work.

The death of the queen brought the party back to the city without visiting Maui as planned, which has given more opportunity for military and other Oahu investigations, and proving Kauai's attractions.

Among other distinguished visitors during the year was Rabindranath Tagore, Hindu poet, who, touching here January 23rd on his way home from the States, gave an afternoon address at the Young Hotel roof garden. Explorer Sir Ernest Shackleton, also at the same place, during the brief stop of his ship in port, April 3rd, told of his marvelous rescue work in the Antarctic.

MUSICAL TREATS.

The city has been visited again with a number of musicians of note during the year, whose concerts, with the aid of local artists have furnished enjoyable entertainments from time to time. Among these were Tina Lerner, Russian pianist, who gave two concerts in February in the Opera House; Katherine

Goodson, pianist, and Max Selinsky, Russian violinist, in three concerts, and Ellen Beach Yaw, famed coloratura singer, on two occasions at Mission Hall.

But the treat of the year that will last in memory for the sympathy, enjoyment and enthusiasm manifest, was the successful debut concerts of Miss Peggy Center, January 23rd and 26th, at the Opera House, with Madam Melba as accompanist to her protegee. Honolulu felt proud of their daughter and grateful to Madam Melba in discovering and training her sweet young lyric and coloratura soprano voice.

RESIGNATIONS.

With the close of the year two long-tried and therefore proved valuable public servants resign from their respective positions, viz.: Rev. H. H. Parker, the faithful pastor for over fifty-four years of the Kawaiahao (native) church, and Dr. Wm. T. Brigham, director of the Bishop Museum, to which he has given the ripening years of his life with devotion and scientific ability that has built up the institution from its modest inception at his hands in 1889, to the foremost rank in its class in the world today, through the liberality of the late Chas. R. Bishop and the Museum Trustees.

NECROLOGY.

From among well-known or early residents, or identified with island interests, the following deaths have occurred since our last issue: Wm. G. Scott (49); H. S. Swinton (75), Mrs. Wm. T. Schmidt (42), A. A. Wilder (43), Mrs. E. C. Williams (70), Mrs. M. T. Morgan (49), Jas. Lycett (73), Miss A. M. Paris (73), Mrs. M. Hackfeld, Bremen (88), H. P. Wood (61), Mrs. S. B. Rose (68), F. M. Swanzy (67), W. P. Fennell, Cal. (57), Mrs. F. T. Bickerton (67), Cecil Brown (68), L. E. Thayer (74), Mrs. L. M. Dayton (72), Jas. Lyle, Cal. (83), Mrs. G. H. Gere (47), Mrs. Fred. Harrison (42), Mrs. M. B. McInerney (78), Mrs. J. H. Fisher (52), G. H. Gere (49), Miss K. S. Wight (53), Miss C. J. Armstrong, Cal. (70), Mrs. C. L. Paris, Cal. (80), Dr. F. A.

Lyman (54), C. E. Kellogg, Luther Severance (81), J. F. Haley (41), Levi T. Chamberlain (80), Mrs. R. W. Atkinson, N. Y. (29), N. P. Jacobson (74), Capt. Wm. Matson, Cal., Rev. W. E. Potwine, Cal., Queen Liliuokalani (79), Paul Muhlendorf (59), Wm. C. Parke (52).

NEW RADIO STATION.

Pearl Harbor Radio Station was formally opened September 28th by direct messages exchanged with Sayville, Long Island, without relay. The Secretary of the Navy in his congratulatory reply to Commandant Clark's message credits this as the most powerful radio station in the world.

ART EXHIBIT.

An exhibit by the Hawaiian Society of Artists, in which several visiting brethren cooperated, had its opening June 1st in the rooms of the Pan-Pacific Pavilion, which comprised oil and water colors, etchings and sculptures, an interesting and and much-admired collection.

There have been several individual exhibits during the year, the islands being favored with visits of Lionel Walden, Ambrose Patterson, E. W. Christmas, R.B.A., Twigg-Smith, Chas. W. Bartlett, Harry Best and Alexr. Harrison.

MISCELLANEA.

The world war originating in Europe has caused the introduction of the copper cent into Honolulu as needed change for public convenience through the application November 1st of the war tax. The first shipment of 5,000 came to the bank of Bishop & Co. Since Annexation cents have been used in change at the post office, but not so as to become a popular coin.

Kapiolani Park is gradually taking on a "Zoo" feature, thanks to Supervisor Hollinger in his interest in animal attractions for the young. Beginning with an elephant on his hands, the rare animals and birds which he has procured from time to time, are proving both popular and educational.

Hilo Bay will soon have a flock of sea-gulls to welcome all visitors to the crescent city, Judge W. S. Wise having introduced several from San Francisco this past summer, which, in October, were reported as doing well.

A Fijian contingent 100 strong arrived here May 25th en route to the war zone and were entertained during their stay. In turn they paraded the principal streets and after lunch gave an exhibition of singing and dancing. A second company for this year passed through July 20th.

The daylight saving movement was agitated again this past summer, with evidence of material progress, but after due consideration before the chamber of commerce it failed in adoption.

Island inventive genius is said to have received government recognition by the acceptance of H. McCubbin's diver-destroying device upon a thorough test by the navy officials.

Anthrax broke out suddenly on Kauai early in summer, then in a herd of milch cows on Oahu and later among the cattle of Maui, inflicting serious loss in each case before it was got under control and eradicated.

MEANING OF SOME HAWAIIAN PLACE-NAMES.

THE following paper was contributed to the *ANNUAL* of 1901 by Prof. C. J. Lyons—acknowledged in his day as our foremost Hawaiian scholar—to meet the frequent inquiries for the definition of names of the different localities of Honolulu's vicinity. It is reproduced as being applicable to the same situation today.

It is not always safe to undertake to give the meaning of a Hawaiian proper name, especially for those not acquainted with the working of the Hawaiian mind, or what may be called the genius of the people. Some ludicrous mistakes have been made in this line. The literal translation of two words

taken separately may be very different from the idea conveyed to the Hawaiian mind by the combination.

Honolulu means the sheltered *hono*, *hono* being a hollow or valley with a bay or bight in front of it. Sheltered harbor, or quiet harbor, may be taken as the meaning.

Nuuanu is "cool terrace" of notch in mountain, referring to the cold wind at the Pali, the place at the top of the Pali being a *nu'u* to those approaching from Koolau to the "*nuku o Nuuanu*."

Pauoa is an "ear," or side valley to Nuuanu.

Kalihi is the "outside edge," or boundary valley.

Manoa is the broad, or wide valley. *Palolo*, the clay valley; *palolo*, meaning clay.

Kaimuki is not the oven where food is cooked in *ki* leaves, but "the oven for cooking ti root." The root of the *Dracaena* is cooked and eaten like sugar cane—the juice also being distilled to liquor.

Leahi was originally "*Lae'ahi*", or "crest of the fish *ahi*," which this headland strongly resembles from the east. It has no allusion to *ahi*, fire, which is a different word.

Waikiki,—*kiki* is an old way of doing up the hair in a cone with lime or clay,—*wai* being water or stream.

Puowaina,—Punchbowl Hill, means "the hill of offering" or sacrifice,—*puu o waiho ana*, an antique form. The bodies of those slain for breaking tabu were laid on the altar-like ledge at the top and burned, the crack below giving a good draught of air.

Moanalua is named from the great expanse of level land and reef at the sea. *Kaholaloa*, Quarantine Island, broad coral reef.

Punahou; Hawaiian *Kapunahou*, is of course "new spring." *Kapalama*, a guarded enclosure. *Kamooiliili*, the pebbly or stony strip or ridge.

Two or three old idols in this line must be shattered by the strict antiquarian. Haleakala as "House of the sun" is a mod-

ern innovation; the original legend makes it mean the "ensnaring of the sun's rays." It would read *Hale o ka la* if it meant house of the sun—just as we say "*Ka hale o Keawe*," "the house of Keawe."

Halema'uma'u is not pronounced "mow-mow" but ma-u-ma-u, and cannot mean "house of everlasting fire." It is somewhat doubtful too whether it means "Fern house;" so the etymology must probably be referred to the obscure past.

Kilauea too is an ancient name. It probably has reference to the rising, *ea*, of the cloud of smoke over the crater, as seen from a distance.

NEW LAVA TERMS.—T. A. Jaggar, Jr., of the Hawaiian Volcano Observatory, in order to meet the objections of English and continental geologists to the Hawaiian terms *aa* and *pahoehoe* for our two distinct kinds of lava, somewhat accepted by American geologists, proposes the adoption of the term *Aphrolith* (Greek, foam + stone) for the *aa*, and the term *Dermolith* (Greek, skin + stone) for the *pahoehoe*.

Interesting Phenomena, 1918.

Planetary Conjunctions, Angular Distance less than 1° , which will be visible in the Hawaiian Islands.

Date	Honolulu Mean Time	Bodies	Angular Distance
Apr. 12.....	12:41 A.M.	Mercury and Moon	$0^\circ 32'$
May 11.....	11:43 P.M.	Jupiter and Moon	0 57
June 8.....	8:13 P.M.	Jupiter and Moon	0 18
July 26.....	10:30 P.M.	Jupiter and Venus	0 36
Sept. 24.....	8:30 P.M.	Mercury and Venus	0 20
Dec. 3.....	9:55 A.M.	Venus and Moon	0 2

The last conjunction on the above list will be the only occultation of the year, which, despite its coming in the middle of the morning, may be witnessed in Hawaii, as both the Moon and Venus are visible in the daytime.

THE WOLF COMET.—Comet b 1916 (Wolf), passed its perihelion June 16, 1917. It is rapidly receding from the Sun and the Earth, and will pass out beyond the orbit of Jupiter about September, 1918. At the beginning of this year it will be traveling almost due East, through the constellation of Cetus, southeast of the Square of Pegasus. Its magnitude will be less than 12th Magnitude, rapidly becoming fainter.

List of Sugar Plantations, Mills and Cane Growers Throughout the Islands.

Those marked with an asterisk (*) are planters only; those marked with a dagger (†) are mills only; all others are plantations complete, owning their own mills. (Corrected to November 1, 1917.)

Name.	Location.	Manager.	Agents.
Apokaa Sugar Co.*	Ewa, Oahu	G. F. Renton	Castle & Cooke, Ltd.
Ewa Plantation	Ewa, Oahu	G. F. Renton	Castle & Cooke, Ltd.
Gay & Robinson	Makaweli, Kauai	S. Robinson	H. Waterhouse Trust Co., Ltd.
Grove Farm*	Nawiliwili, Kauai	Edwin Broadbent	H. Hackfeld & Co., Ltd.
Hakalau Plantation Co.	Hilo, Hawaii	J. M. Ross	C. Brewer & Co., Ltd.
Halawa Sugar Co.	Kohala, Hawaii	H. H. Perry	T. H. Davies & Co., Ltd.
Hamakua Mill Co.	Hamakua, Hawaii	A. Lidgate	T. H. Davies & Co., Ltd.
Hawi Mill and Plantation Co.	Kohala, Hawaii	John Hind	Hind, Rolph & Co.
Hawaiian Agricultural Co.	Kau, Hawaii	Jas. Campsie	C. Brewer & Co., Ltd.
Hawaiian Commercial & Sugar Co.	Puunene, Maui	F. F. Baldwin	Alexander & Baldwin, Ltd.
Hawaiian Sugar Co.	Makaweli, Kauai	B. D. Baldwin	Alexander & Baldwin, Ltd.
Hawaii Mill Co.†	Hilo, Hawaii	Jas. Henderson	C. Brewer & Co., Ltd. ¹
Hilo Sugar Co.	Hilo, Hawaii	John A. Scott	C. Brewer & Co., Ltd.
Honolulu Plantation Co.	Halawa, Oahu	Jas. Gibb	C. Brewer & Co., Ltd.
Honokaa Sugar Co.	Honokaa, Hawaii	W. P. Naquin	F. A. Schaefer & Co., Ltd.
Honomu Sugar Co.	Hilo, Hawaii	Wm. Pullar	C. Brewer & Co., Ltd.
Hutchinson Sugar Plantation Co.	Kau, Hawaii	Geo. Gibb	C. Brewer & Co., Ltd.
Kaeleku Sugar Co.	Hana, Maui	J. Chalmers	T. H. Davies & Co., Ltd.
Kahuku Plantation	Kahuku, Oahu	Andrew Adams	Alexander & Baldwin, Ltd.
Kaiwiki Sugar Co.	Ookala, Hawaii	Jas. Johnston	T. H. Davies & Co., Ltd.
Kaiwiki Milling Co.†	Hilo, Hawaii		Fred. L. Waldron, Ltd. ²
Kekaha Sugar Co.	Kekaha, Kauai	H. P. Faye	H. Hackfeld & Co., Ltd.
Kilauea Sugar Plantation Co.	Kilauea, Kauai	J. R. Myers	C. Brewer & Co., Ltd.
Kipahulu Sugar Co.	Kipahulu, Maui	J. Fassoth	H. Hackfeld & Co., Ltd.
Kohala Sugar Co.	Kohala, Hawaii	Geo. C. Watt	Castle & Cooke, Ltd.

¹ Shipping agents.

² Selling agents.

List of Sugar Plantations, Mills and Cane Growers Throughout the Islands.—Continued.

Name.	Location.	Manager.	Agents.
Koloa Sugar Co.	Koloa, Kauai	E. Cropp	H. Hackfeld & Co., Ltd.
Kona Development Co.	Kona, Hawaii	T. Konna	H. Waterhouse Trust Co., Ltd.
Koolau Agricultural Co.*	Koolau, Oahu	Andrew Adams	Hawaiian Development Co.
Lale Plantation	Lale, Oahu	S. E. Wooley	Alexander & Baldwin, Ltd.
Laupahoehoe Sugar Co.	Laupahoehoe, Haw.	R. Hutchinson	T. H. Davies & Co., Ltd.
Lihue Plantation Co.	Lihue, Kauai	F. Weber	H. Hackfeld & Co., Ltd.
Makee Sugar Co.	Kealia, Kauai	H. Wolters	H. Hackfeld & Co., Ltd.
Maui Agricultural Co.	Haiku, etc., Maui	H. A. Baldwin	Alexander & Baldwin, Ltd.
McBryde Sugar Co.	Wahiawa, Kauai	F. A. Alexander	Alexander & Baldwin, Ltd.
Niuli Mill & Plantation	Kohala, Hawaii	Robert Hall	T. H. Davies & Co., Ltd.
Oahu Sugar Co.	Waipahu, Oahu	E. K. Bull	H. Hackfeld & Co., Ltd.
Olaa Sugar Co.	Olaa, Hawaii	C. F. Eckart	Bishop & Co.
Olowalu Sugar Co.	Olowalu, Maui	Alexr. Valentine	C. Brewer & Co., Ltd.
Onomea Sugar Co.	Hilo, Hawaii	John T. Moir	C. Brewer & Co., Ltd.
Paaunahu Sugar Plantation Co.*	Hamakua, Hawaii	F. M. Anderson	C. Brewer & Co., Ltd.
Pacific Sugar Mill (†)	Kukuihaele, Hawaii	W. P. Naquin	F. A. Schaefer & Co., Ltd.
Pepeekeo Sugar Co.	Hilo, Hawaii	Jas. Webster	C. Brewer & Co., Ltd.
Pioneer Mill Co., Ltd.	Lahaina, Maui	L. Weinzheimer	H. Hackfeld & Co., Ltd.
Puakea Plantation Co.	Kohala, Hawaii	H. R. Bryant	H. Waterhouse Trust Co., Ltd.
Union Mill Co.	Kohala, Hawaii	H. H. Renton	T. H. Davies & Co., Ltd.
Waiakea Mill Co.	Hilo, Hawaii	D. Forbes	T. H. Davies & Co., Ltd.
Waialua Agricultural Co.	Waialua, Oahu	W. W. Goodale	Castle & Cooke, Ltd.
Waianae Plantation	Waianae, Oahu	Fred. Meyer	J. M. Dowsett
Wailuku Sugar Co.	Wailuku, Maui	H. B. Penhallow	C. Brewer & Co., Ltd.
Waimanalo Sugar Co.	Waimanalo, Oahu	Geo. Chalmers	C. Brewer & Co., Ltd.
Waimaea Sugar Mill Co.	Waimaea, Kauai	G. R. Ewart, Jr.	H. Hackfeld & Co., Ltd.

HAWAIIAN SUGAR CROPS, IN TONS, 1912-17.

From Tables Prepared for Hawaiian Planters' Association by
its Bureau of Labor and Statistics.

Prior years of this table, originating in 1891, will be found in *Annals*
since 1901.

Islands.	1912	1913	1914	1915	1916	1917
Production of Hawaii	209,920	197,415	217,654	240,785	197,654	232,132
" " Maui	248,585	124,819	144,940	160,283	150,312	147,648
" " Oahu	139,712	124,228	133,560	129,997	136,966	145,550
" " Kauai	97,041	100,336	120,884	115,380	108,551	119,244
Grand Total.....	595,258	546,798	617,038	646,445	593,483	644,574
Hawaii Plantations.						
Waiakea Mill Co....	14,332	13,076	14,922	16,141	14,484	14,876
Hawaii Mill Co.....	2,378	2,855	3,601	3,793	1,845	3,653
Hilo Sugar Co.....	13,872	14,033	18,937	17,905	16,450	16,150
Onomea Sugar Co...	17,454	16,887	19,600	21,320	18,732	21,067
Pepeekeo Sugar Co...	8,009	8,951	9,806	11,948	9,345	11,040
Honolulu Sugar Co...	7,450	7,004	8,567	9,852	6,557	9,576
Hakalau Plant. Co...	17,116	15,402	16,863	19,327	15,951	20,235
Laupahoehoe Sgr. Co.	9,087	9,671	11,193	11,730	10,174	11,302
Kaiwiki Sugar Co...	5,896	5,140	6,932	6,849	5,013	7,191
Kukaula Plant. Co...	2,021	2,078)			
Kukaula Mill Co.....	1,347	1,385	3,225	4,672	3,118	5,056
Hamakua Mill Co....	9,461	6,845	7,057	9,261	7,661	9,926
Paauhau S. Plant. Co.	11,391	9,958	10,767	10,073	7,859	10,868
Honokaa Sugar Co...	8,259	10,103	7,272	8,613	7,232	9,031
Pacific Sugar Mill...	7,001	5,938	6,250	7,253	5,656	7,970
Niuli Mill and Plant.	2,014	2,803	2,700	3,098	2,110	2,556
Halawa Plantation...	1,902	1,641	2,087	2,840	1,705	2,559
Kohala Sugar Co....	5,970	5,675	4,475	7,780	4,170	6,427
Union Mill Co.....	3,990	1,769	2,608	3,437	1,966	2,392
Hawi Mill and Plant..	9,453	6,489	6,745	9,426	6,461	9,045
Kona Developm't Co.	2,570	2,943	3,477	3,444	144	4,555
Hutchinson S. Pl. Co.	8,002	5,510	5,909	6,781	9,723	6,647
Hawaiian Agrl. Co...	14,938	12,856	17,890	16,407	13,818	12,385
Puakea Plantation...	1,538	839	1,035	1,429	963	937
Olaa Sugar Co.....	22,941	27,399	25,736	27,406	26,476	26,698
Puako Plantation....	519	185	.....	.....	.....
	209,920	197,415	217,654	240,785	197,654	232,132

HAWAIIAN SUGAR CROPS, 1912-17—Continued.

Maui Plantations.	1912	1913	1914	1915	1916	1917
Kipahulu Sugar Co..	2,197	1,408	2,126	2,699	848	1,510
Kaeleku Plant. Co.*..	4,949	4,938	6,225	6,605	6,721	6,240
Maui Agri. Co.	34,612	24,633	33,660	39,620	34,011	35,795
Hawn. Coml. & S. Co.	60,010	50,310	56,500	56,780	59,035	53,812
Wailuku Sugar Co....	16,775	13,988	16,100	19,177	15,094	15,038
Olowalu Co.	1,707	1,738	2,027	2,173	1,850	1,974
Pioneer Mill Co., Ltd.	28,335	27,804	28,302	33,229	32,753	33,279
	148,585	124,819	144,940	160,283	150,312	147,648
Oahu Plantations.						
Waimanalo Sgr. Co..	4,979	4,287	5,133	5,260	5,018	4,953
Laie Plantation	1,200	977	1,600	1,171	1,541	1,178
Kahuku Plant. Co...	6,024	6,215	8,193	7,823	6,534	8,317
Waialua Agri. Co....	33,356	29,751	30,298	31,156	31,227	29,941
Waianae Co.	6,021	5,226	0,083	6,400	4,626	6,115
Ewa Plantation Co...	34,435	29,512	29,563	29,502	32,045	34,748
Apokaa Sugar Co....	895	381	925	356	793	939
Oahu Sugar Co.....	33,472	28,142	33,474	29,619	33,625	37,211
Honolulu Plant. Co..	18,692	19,337	20,154	18,233	20,586	21,562
Koolau Agri. Co....	638	400	1,137	487	971	586
	139,712	124,228	133,560	129,997	136,996	145,550
Kauai Plantations.						
Kilauea S. Plant. Co.	5,543	5,451	6,426	6,733	5,216	5,924
Makee Sugar Co.....	5,219	7,418	10,660	10,944	5,138	13,509
Lihue Plantation Co.	18,021	19,819	22,065	21,492	20,168	20,174
Grove Farm Plntr...	3,098	3,695	4,415	4,007	3,569	3,836
Koloa Sugar Co.....	8,005	5,886	8,572	9,502	7,955	9,206
McBryde Sugar Co...	13,147	14,509	16,345	15,458	15,598	17,407
Hawaiian Sugar Co...	22,221	22,308	26,826	24,706	23,194	23,534
Gay & Robinson.....	4,659	4,821	5,172	5,259	4,650	4,510
Waimea Sgr. Mill Co.	1,922	1,610	2,258	1,404	2,054	1,965
Kekaha Sugar Co....	14,348	14,008	17,153	15,078	16,107	18,354
Estate of V. Knudsen	858	811	992	795	902	825
Total.....	97,041	100,336	120,884	115,380	108,551	119,244

* Formerly Hana Plantation.

TERRITORIAL REGISTER AND DIRECTORY FOR 1918.

Corrected to December 1, 1917.

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H. W. Kinney..Supt. Public Instruction
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W. P. Jarrett.....High Sheriff
Will Wayne.....Secretary to Governor

Jonah K. Kalaniana'ole.....
.....Delegate to Congress

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W. T. Robinson.
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Associate Justice.....Hon. R. P. Quarles

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Second Judge 1st Circuit, Oahu.....
.....Hon. S. B. Kemp
Third Judge 1st Circuit, Oahu.....
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.....Hon. Clement K. Quinn
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Stenographer, Supreme Court.....
.....Miss Kate Kelly
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Assistant Clerks
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.....H. A. Wilder, J. Cullen
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.....A. V. Hogan, A. E. Restarick
Clerks, 3rd Judge.....
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 dez, I. H. Harbottle, R. G. Ross, Ti
 Mito, John A. Palmer, Chas. Girdler,
 R. B. Reedy, A. A. Dunn, Deputies.
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 F. W. Holt.....Waialua
 Henry Cobb Adams.....
Koolauloa and Koolaupoko

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 J. M. Ambrose.....Lahaina
 W. Henning.....Makawao
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 W. D. Ackerman.....Kona
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 Moses Koki.....South Kohala
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Clerk.....B. K. Kane
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Engineers.....
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Capt. W. R. Foster
 Assistant.....Capt. Wm. H. Curtis
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 J. R. Macaulay, J. F. Haglund.
 Harbor Master and Pilot, Hilo.....
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Jos. Iao Draughtsman
Miss A. F. Bertleman.... Stenographer

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..... In Charge Nursery, Kauai

E. M. Ehrhorn.....Supt. of
Entomology and Plant Inspector
D. B. Kuhns.....Inspector's Assistant
Bro. M. Newell.....
.....Fruit and Plant Inspector, Hilo
D. T. Fullaway.....Field Entomologist
Miss A. Buchanan.....Laboratory Asst.

Victor A. Norgaard, V. S. Supt. and Territorial Veterinarian
Dr. L. N. Case Assistant
Dr. J. C. Fitzgerald, Dep. V. S. Maui
Dr. H. B. Elliott, Dep. V. S. E. Hawaii
Dr. A. R. Rowatt, Dep. V. S. W. Hawaii
Dr. A. R. Glazlyer, Dep. V. S. Kauai
Cyril Golding, Asst., Kauai
J. Richard, Dairy and Live Stock Insptr.
Miss M. T. Kelly, Clerk and Stenog.
Miss Florence White,
..... Stenog. and Librarian
Daniel Logan, Editor Forester
O. B. Lightfoot
..... Acting Supt. Marketing Division

Oahu-Maui.....M. D. Monsarrat
Hawaii.....W. H. Smith, Hilo
 J. A. Matthewman, Kailua
Kauai.....Lyle A. Dickey

Honolulu—John Markham, Norman E. Gedge.
Ewa—A. Waiānae—E. W. White, C. A. Brown.
Waiālua—R. Kinney, W. B. Thomas.
Makawao—E. Morton, W. Henning, J. E. Pires.
Hamakua—W. J. Rickard, A. L. Moses, J. K. White.
N. Kohala—W. S. May, Ernest K. Kanehalla, E. K. Akina.
N. Kona—A. S. Wall, Thos. Silva, J. Kalelemakule.
S. Kona—E. K. Kaaua, L. P. Lincoln, A. Haile.
Kau—Geo. Campbell, John T. Nakai, G. J. Becker.
Puna—H. J. Lyman, G. D. Supe.
Molokai—S. Fuller, James G. Munro, H. R. Hitchcock.

City and County of Honolulu.

F. D. Lowrey.....	Chairman
C. A. Long.....	Secretary
R. A. Cooke, J. O. Carter, L. M. Vetlesen	

County of Maui.

T. B. Lyons.....Chairman
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Kaae, D. H. Case.

John T. Moir.....Chairman
R. T. Guard, T. C. White, Saml P.
Woods, J. A. M. Osorio.

County of Kauai.
W. H. Rice, Sr.....Chairman
G. N. Wilcox, W. D. McBryde, B. D.
Baldwin, J. R. Meyers.

DEPARTMENT OF PUBLIC LANDS.

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 Walter A. Engle.....Chief Clerk
 S. M. Kanakanui.....
Surveyor and Title Searcher
 Henry Peters.....First Clerk
 Wm. J. Coelho.....Translator
 H. L. Kinslea.....Third Clerk
 Miss Rose Holt.....Fourth Clerk
 E. W. Armstrong.....Index Clerk

Sub-Agents.

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Jos. G. Andrews
 2nd District, Hamakua.....Jos. G. Andrews
 3rd District, Kona.....Julian R. Yates
 3rd District, Kau.....W. H. Hayselden
 4th District, Maui.....W. O. Aiken
 5th District, Oahu.....W. A. Engle
 6th District, Kauai.....W. D. McBryde
 Miss B. Hundley, Asst.

Division of Hydrography.

C. T. Bailey.....
Chief Hydrographer and Engineer
 W. C. Woodward.....Office Engineer
 H. A. R. Austin, Asst. Engineer (Maui)
 R. D. Klise, W. V. Hardy.....
Assistant Engineers
 J. Kaheaku.....Computer
 E. E. Goo.....Clerk

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BOARD OF COMMISSIONERS OF
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 Commissioners—A. G. M. Robertson, M.
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 Librarian.....R. C. Lydecker
 Translator.....Stephen Mahaulu

DEPARTMENT OF PUBLIC IN-
STRUCTION.

Superintendent.....H. W. Kinney
 Commissioners.

Oahu.....
 L. G. Blackman, Mrs. Theo. Richards
 Maui.....D. C. Lindsay
 Hawaii.....Mrs. B. D. Bond, W. H. Smith
 Kauai.....E. A. Knudsen
 Inspector, Normal...William C. Avery

Supervising Principals—

Oahu—James C. Davis.
 Maui—Geo. S. Raymond.
 Hawaii, East—Bertha B. Taylor; Hawaii,
 West—Eugene Horner.
 Kauai—Bernice Hundley.
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 Asst. Secretary.....C. K. Stillman, Jr.
 Asst. Clerk.....Miss Eleanor L. Holt
 Asst. Clerk.....H. H. Williams

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Dr. L. L. Patterson
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 Resident Physician.....Dr. W. J. Goodhue
 Chief Sanitary Officer, Hawaii—D. S.
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 Chief Sanitary Officer, Maui—J. L.
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 Cook.

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 Geo. B. Tuttle.....Koolaupoko
 R. J. McGettigan.....Ewa and Waiānae
 Dr. H. B. Cooper.....Alea
 C. Buffett.....Koolauloa
 Maui—
 Franklin Burt.....Lahaina
 Dr. A. C. Rothrock.....
Makawao and Kula
 R. C. Lichtenfels.....Hana
 Wm. Osmer.....Wailuku
 F. L. Sawyer.....Puunene and Kihel
 C. P. Durney.....Kula and Upper Makawao
 Hawaii—
 O. A. Jeffreys.....N. Kona
 H. L. Ross.....S. Kona
 B. D. Bond.....N. Kohala
 R. G. Miller.....Hamakua and S. Kohala
 L. L. Sexton.....S. Hilo
 W. D. Whitman.....N. Hilo
 Frederick Irwin.....Puna
 K. Hoffmann.....Kau
 Kauai—
 Wm. Dunn.....Waimea
 A. H. Waterhouse.....Koloa
 F. L. Putnam.....Lihue
 K. Yanagihara.....Hanalei
 J. M. Kuhns.....Kawaihau

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Maui—W. H. Field, W. J. Cooper, Geo. Weight, G. Freeland, W. A. McKay.

Hawaii—D. Ewaliko, H. B. Elliot, Jas. Webster, H. A. Truslow.

Kauai—J. H. Moragne, H. H. Brodie, J. M. Lydgate, E. E. Mahlum, L. D. Timmons.

CIVIL SERVICE COM. BRD. HEALTH.

W. C. McGonagle, W. Wolters,
Dr. F. F. Hedemann.

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Medical—Dr. R. W. Benz, Dr. J. T. McDonald, Dr. Grover A. Batten.

Pharmacy—H. H. Morehead, Dr. F. F. Hedemann, A. J. Gignoux.

Dental—O. E. Wall, M. E. Grossman, C. B. High.

Veterinary—V. A. Norgaard, W. T. Monarrat, H. B. Elliott.

COMMISSIONERS OF INSANITY.

L. J. Warren.....Chairman
Drs. C. B. Cooper, G. H. Herbert.

PUBLIC UTILITIES COMMISSION.

Established 1913.

ChairmanW. T. Carden
Members
.....W. P. Thomas, A. J. Gignoux

CHAMBER OF COMMERCE OF HONOLULU.

Reorganized May 27, 1914.

President.....J. F. C. Hagens
1st Vice-President...Norman E. Gedge
2d Vice-President.....F. C. Atherton
Treasurer.....A. Lewis, Jr.
Secretary.....Raymond C. Brown
Directors—Geo. H. Angus, E. A. Berndt,
E. F. Bishop, F. E. Blake, A. W. T. Bottomley, A. L. Castle, R. A. Cooke, Geo. P. Denison, J. D. Dole, C. R. Hemenway, F. J. Lowrey, W. H. McInerny, E. H. Paris, T. H. Petrie, Geo. W. Smith, John Waterhouse, Norman Watkins.

MAUI CHAMBER OF COMMERCE.

President.....R. A. Wadsworth
Vice-President.....H. W. Rice
Secretary.....D. H. Case
Treasurer.....C. D. Lufkin

HILO BOARD OF TRADE.

Organized

President.....G. H. Vicars
Vice-President.....E. N. Deyo
Sec.-Treas.....V. L. Stevenson

KAUAI CHAMBER OF COMMERCE.

Organized 1913.

PresidentF. Crawford
Vice-President.....T. Brandt
Secretary.....E. H. Broadbent
Treasurer.....J. I. Silva
Auditor.....W. N. Stewart

HAWAII PROMOTION COMMITTEE.

E. A. Berndt.....Chairman
Ed Towse, J. D. McInerny, A. F. Wall, A. R. Gurrey, Jr., Geo. H. Angus (Oahu), W. O. Aiken (Maui), James Henderson (Hawaii), W. H. Rice, Jr. (Kauai), Fred. J. Halton, Secretary.

HONOLULU STOCK AND BOND EXCHANGE.

Organized August 8, 1898.

President.....H. B. Giffard
Vice-President.....W. A. Love
Secretary.....D. L. Conkling
Treasurer.....Guardian Trust Co.

HAWAIIAN SUGAR PLANTERS' ASSOCIATION.

Re-organized Nov. 18, 1895.

President.....E. D. Tenney
Vice-President.....E. H. Wodehouse
Secretary and Treasurer...W. O. Smith
Assistant Sec.-Treas.....L. J. Warren
Auditor.....J. W. Waldron

EXPERIMENT STATION OF PLANTERS' ASSOCIATION.

Station Staff.

H. P. Agee.....Director
R. C. L. Perkins, A. Koebele.....
.....Consulting Entomologists
Otto H. Swezey, F. Muir, Entomologists
P. H. Timberlake, F. X. Williams.....
.....Asst. Entomologists
H. L. Lyon.....Pathologist
E. L. Caum.....Asst. Pathologist
R. S. Norris.....Sugar Technologist
W. R. McAllep, Asst. Sugar Technologist
P. S. Burgess.....Chemist
A. Brodie, J. M. Reynolds.....
.....Asst. Chemists
F. R. Werthmueller, Geo. H. Hutchinson, G. R. Haddock, Asst. Chemists
J. P. Melanphy.....Fertilizer Sampler
J. A. Verret, R. S. Thurston, W. P. Alexander, R. M. Allen, J. T. Moir, Jr.,
.....Associate and Asst. Agriculturists

W. R. R. Potter.....Illustrator
H. B. Campbell.....Business Agent

HAWAIIAN CHEMISTS' ASSOCIATION

President.....W. G. Van Duker
Vice-President.....P. S. Burgess
Secretary-Treasurer.....S. S. Peck

HAWAIIAN ENGINEERING ASSOCIATION.

Organized

Chairman.....C. B. Andrews
Vice-Chairman.....R. R. Hini
Secretary.....F. C. Boyer
Treasurer.....Irwin Spalding

BOARD OF MARINE UNDERWRITERS —AGENCIES

Boston.....C. Brewer & Co.
Philadelphia.....C. Brewer & Co.
New York.....Bruce Cartwright
Liverpool.....Theo. H. Davies & Co.
Lloyds, London.....Theo. H. Davies & Co.
San Francisco.....Bishop Ins. Agency
Bremen.....F. A. Schaefer

BOARD OF FIRE UNDERWRITERS OF TERRITORY OF HAWAII.

Jno. Waterhouse.....President
B. von Damm.....Vice-President
F. A. Bechert.....Secretary
H. Hackfeld & Co.....Treasurer
Audit Co. of Hawaii.....Auditor

QUEEN'S HOSPITAL.

Erected in 1860.

President.....Geo. W. Smith
Vice-President.....A. J. Campbell
Secretary.....Bruce Cartwright, Jr.
Treasurer.....Geo. C. Potter
Auditor.....Audit Co. of Hawaii
Resident Physician.....Dr. Merod
Specialist.....Dr. J. A. Morgan
Superintendent.....
Bookkeeper.....C. J. Daub
Head Nurse.....Miss Helen Macfarlane
Housekeeper.....Mrs. F. Kuhlmann
Trustees—A. J. Campbell, G. W. Smith,
G. C. Potter, W. A. Love, B. Cart-
wright, Jr., Edgar Henriques, J. E.
Jaeger.

LEAHI HOME.

Organized April 4, 1900.

President.....A. A. Young
Vice Presidents.....
.....C. Montague Cooke, W. E. Brown
Secretary.....C. R. Hemenway
Treasurer.....A. W. T. Bottomley
Auditor.....W. F. Dillingham
Medical Supt. A. N. Sinclair, M. B. C. M.
Asst. Supt. Robt. Anderson
Matron.....Mrs. A. B. Chamberlain
Nurses.....Miss McBryde, Miss Ford
Clerk.....L. J. Fagg

CHILDREN'S HOSPITAL.

Opened Nov. 24, 1909.

President.....S. B. Dole
Vice-President.....Geo. P. Castle
Secretary.....Irene Dyches
Treasurer.....W. O. Smith
Auditor.....Audit Co. of Hawaii
Superintendent.....Miss J. N. Dewar
Trustees—S. B. Dole, W. O. Smith, G.
P. Castle, A. S. Wilcox, Allen Her-
bert, Geo. B. Isenberg, E. A. Mott-
Smith.

HOSPITAL FLOWER SOCIETY.

President.....Mrs. A. Gartley
Vice-President.....Mrs. R. D. Mead
Secretary.....Mrs. A. J. Gignoux
Treasurer.....Mrs. W. F. Soper

SAILORS' HOME SOCIETY.

Organized 1853.

Meets annually in December.

President.....F. A. Schaefer
Secretary.....C. H. Atherton
Treasurer.....Jno. Waterhouse
Trustees—J. A. Kennedy, Geo. Ro-
diek, R. Ivers.

DAUGHTERS OF HAWAII.

Hon. Regent.....Mrs. B. F. Dillingham
Presiding Regent.....
.....Mrs. F. W. Macfarlane
First Vice-Regent.....Mrs. C. S. Holloway
Second Vice-Regent.....
.....Mrs. R. D. Walbridge
Historian.....Miss Anna Paris
Cor. Secretary.....Mrs. Geo. Potter
Rec. Secretary.....Mrs. A. P. Taylor
Treasurer.....Mrs. A. Gartley

TERRITORIAL LIBRARY. HONOLULU LIBRARY ASSOCIATION.

Organized March.

Incorporated June 24, 1879.

President.....Prof. M. M. Scott
Secretary.....J. H. Fisher
Treasurer.....A. Gartley
Auditor.....J. H. Fisher

LIBRARY OF HAWAII.

Trustees.

C. H. Atherton.....President
Rev. H. B. Restarick.....Vice-President
J. R. Galt.....Treasurer
Rev. W. D. Westervelt.....Secretary
F. E. Blake, Mrs. L. L. McCandless,
A. Gartley.

Library Staff.

Edna I. Allyn.....Librarian
Maud Jones, Alice E. Burnham.....Assts.
Mary F. Carpenter.....Cataloguer
Carrie P. Green.....Reference Librarian
Mary S. Lawrence.....Children's Librarian
Akana K. Ma.....Clerk
Helen J. Stearns.....Islands Dept.

HAWAIIAN HISTORICAL SOCIETY.
Organized Jan. 11, 1892.

President.....W. F. Frear
 Vice-President--W. A. Bryan, J. S. Emerson, F. M. Hatch.
 Recording Secretary..Edgar Henriques
 Cor. Secretary.....W. D. Westervelt
 Treasurer.....Bruce Cartwright, Jr.
 Librarian.....Miss E. I. Allyn

KAUAI HISTORICAL SOCIETY.

President.....Wm. Hyde Rice
 Vice-President.....J. M. Lydgate
 Sec.-Treas.....Miss E. N. Wilcox

BERNICE PAUAAHI BISHOP MUSEUM.
Board of Trustees.

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 Wm. Williamson.....Secretary
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 Miss L. E. Lucas.....Library Asst.
 Mrs. E. Helvie.....Superintendent of Exhibition Halls
 J. W. Thompson....Artist and Modeler
 John J. Greene.....Printer

BAR ASSOCIATION OF HAWAII.
Organized June 28, 1899.

President.....J. W. Cathcart
 Vice-President.....E. M. Watson
 Secretary.....E. W. Sutton
 Treasurer.....A. M. Cristy

HAWAIIAN PHILATELIC SOCIETY.
Organized April 13, 1911.

President...Maj. R. W. Peck, 2d U.S. Inf.
 Vice-President.....Julius Unger
 Secretary.....C. J. Cooper
 Treasurer.....E. M. Ehrhorn
 Librarian.....E. L. Caum
 Supt. Junior Soc.....A. F. Cooke

Y. M. C. A. CHESS CLUB.
Organized Oct. 17, 1913.

President.....C. H. Medcalf
 Vice-President.....H. W. Vaughan
 Secretary.....H. C. Jewell
 Treasurer.....H. B. Campbell

HAWAIIAN MEDICAL ASSOCIATION
Organized May 24, 1895.

President.....Dr. Herbert Wood
 Vice-President.....A. F. Jackson
 Secretary.....Dr. H. H. Blodgett
 Treasurer.....Dr. E. C. Milner
 Directors---Drs. S. J. Hedemann, I. J. Shepherd, A. N. Sinclair.

HAWAIIAN SOCIETY SONS OF THE AMERICAN REVOLUTION.

Organized June 17, 1895.

President.....W. A. Bryan
 Vice-President.....G. P. Wilder
 Secretary.....J. T. Taylor
 Treasurer.....G. H. Tuttle
 Registrar.....H. B. Marriner
 Board of Managers---L. R. Killam, C. S. Carlsmith.

ALOHA CHAPTER, DAUGHTERS OF THE AMERICAN REVOLUTION.

State Regent...Mrs. W. Alanson Bryan
 Chapt. Regent....Mrs. Hermann Hugo
 Vice-Regent.....Mrs. J. M. Atherton
 Recording Sec....Miss Carolyn Church
 Treasurer.....Miss Charlotte V. Hall
 Registrar.....Mrs. C. B. Andrews
 Historian.....Mrs. J. W. Caldwell
 Chaplain.....Mrs. A. F. B. Judd

HAWAIIAN EVANGELICAL ASSOCIATION.

Originally Organized 1823.

Constitution revised 1863. Annual Meeting June.

President.....F. J. Lowrey
 Vice-Presidents.....A. C. Alexander, Walter F. Frear
 Cor. Secty.....Rrs. H. P. Judd
 Rec. Secretary....Rev. J. L. Hopwood
 Treasurer.....Theo. Richards
 Auditor.....Wm. J. Forbes

WOMAN'S BOARD OF MISSIONS.
Organized 1871.

President.....Mrs. Theo. Richards
 Vice-Presidents---Miss Alice Knapp, Mrs. H. P. Judd.
 Recording Secty...Mrs. R. D. Williams
 Home Cor. Secty.....Edgar Wood
 Foreign Cor. Secty.....Miss A. E. Judd
 Treasurer.....Mrs. B. F. Dillingham
 Asst. Treasurer.....Miss C. C. Varney
 Auditor.....W. J. Forbes

MISSION CHILDREN'S SOCIETY.

Organized 1851. Annual Meeting June.

President.....Gerrit P. Wilder
 Vice-President.....Rev. H. P. Judd
 Secretary.....Mrs. R. W. Andrews
 Recorder.....R. W. Andrews
 Treasurer.....L. A. Dickey

YOUNG MEN'S CHRISTIAN ASSOCIATION.

Organized 1869. Annual Meeting April.
 President.....F. C. Atherton
 Vice-President.....W. G. Hall
 Treasurer.....R. A. Cooke
 Rec. Secretary.....Chas. F. Clemons
 Executive Secty.....Arthur E. Larimer
 Associate Secty.....Glenn Jackson
 Membership Secty.....Harry Pomerantz
 Business Secty.....Floyd H. Emmans
 Educational Secty.....Rolla K. Thomas
 Physical Director.....Richard Whitcomb
 Gymnasium Director.....Chas. A. Pease
 Community Boys' Secy.....Sam'l. W. Robley
 Boys' Dept. Secty.....Milo Vanek

ARMY AND NAVY Y. M. C. A.
 Organized Aug. 3, 1917.

Committee of Management -- James Wakefield, chairman; F. D. Lowrey, Treas.; E. A. Berndt, Arthur G. Smith, Dr. James A. Morgan, John Waterhouse.

Executive Officers
 W. A. Horn.....Supervising Secretary
 Howard N. Mosher.....Associate Secretary
 George A. Andrus, Thomas A. Fisher.....Asst. Secretaries

YOUNG WOMEN'S CHRISTIAN ASSOCIATION.

Organized 1900.

Hon. President...Mrs. B. F. Dillingham
 President.....Mrs. W. F. Frear
 Secretary.....Mrs. F. C. Atherton
 Cor. Secretary.....Mrs. Chas. T. Fitts
 Treasurer.....Mrs. I. J. Shepherd
 Gen. Secty.....Miss Grace Channon

WOMAN'S CHRISTIAN TEMPERANCE UNION OF HAWAII.

Organized December, 1884.

President.....Mrs. J. M. Whitney
 Vice-President.....Mrs. Ida Weedon
 Recording Secty.....Miss Florence Yarrow
 Cor. Secretary.....Mrs. E. W. Jordan
 Treasurer.....Miss Carrie A. Gilman

FREE KINDERGARTEN AND CHILDREN'S AID ASSOCIATION.

Organized 1895.

President.....Mrs. F. M. Swanzy
 Vice-Presidents—Mrs. W. F. Frear, Mrs. Theo. Richards, Mrs. S. B. Dole.
 Recording Secty.....Mrs. I. M. Cox
 Treasurer.....Mrs. E. A. Rath
 Auditor.....J. L. Cockburn

ASSOCIATED CHARITIES.

Organized June 7, 1899.

President.....J. R. Galt
 1st Vice-President.....Hon. S. B. Dole
 2nd Vice-President.....
Mrs. F. W. Macfarlane
 Treasurer.....R. J. Buchly
 Secty. and Manager.....Edgar Brooks

STRANGERS' FRIEND SOCIETY.

Organized 1852. Annual Meeting June.

President.....Mrs. A. Fuller
 Vice-Presidents—Mrs. S. B. Dole, Mrs. A. A. Young.
 Secretary.....Mrs. S. M. Damon
 Treasurer.....Mrs. E. W. Jordan
 Auditor.....E. W. Jordan
 Directress.....Mrs. E. B. Waterhouse

BRITISH ASSOCIATION OF HAWAII.
 Organized 1869.

President (ex-officio)...H.B.M.'s Consul
 Vice-President.....Rev. Wm. Ault
 Secretary.....A. L. C. Atkinson
 Treasurer.....W. H. Baird

HAWAIIAN HUMANE SOCIETY.

President.....M. F. Prosser
 Hon. President.....Mrs. S. B. Dole
 Vice-Presidents—Mrs. S. M. Damon, Mrs. R. D. Mead, Mrs. R. D. Walbridge, Mrs. E. P. Low, Mrs. W. R. Castle, Mrs. C. S. Holloway.
 Secretary.....Mrs. E. D. Kilbourne
 Treasurer.....Mrs. E. A. Mott-Smith
 Auditor.....H. M. Dowsett
 Agent.....Mrs. J. Smythe
 Hon. Agent.....Miss Lucy K. Ward

OAHU CEMETERY ASSOCIATION.

President.....F. J. Lowrey
 Vice-President.....S. G. Wilder
 Secretary.....H. H. Walker
 Treasurer.....Hawaiian Trust Co.

ANTI-SALOON LEAGUE OF HAWAII.
 Organized March 4, 1901.

Superintendent.....John W. Wadman
 President.....L. L. Loofbrow
 Vice-President.....A. E. Larimer
 Vice-Pres. Honorary.....Mrs. J. M. Whitney
 Secretary.....Geo. W. Paty
 Treasurer.....W. A. Bowen

THE OUTDOOR CIRCLE.

(For the beautifying of Honolulu.)

President.....Mrs. L. A. Thurston
 1st Vice-President.....Mrs. A. J. Campbell
 2d Vice-President.....Mrs. I. Cox
 Sec.-Treas.....Mrs. W. L. Moore
 Ex. Officer.....Mrs. A. E. Murphy

PACIFIC CLUB.

Organized 1852. Premises on Alakea Street, two doors below Beretania.

President.....Dr. St. D. G. Walters
 Vice-President.....A. J. Campbell
 Secretary.....Geo. C. Potter
 Treasurer.....J. L. Fleming

UNIVERSITY CLUB.

Organized 1905.

President.....R. B. Anderson
 Vice-President.....W. L. Whitney
 Secretary.....R. C. Walker
 Treasurer.....A. M. Nowell
 Governors—D. L. Withington, A. G. Hawes, Gen. John P. Wisser, U.S.A.

COMMERCIAL CLUB OF HONOLULU.

Organized Aug. 30, 1906.

President.....S. S. Paxson
Vice President.....J. J. Belser
Secretary.....G. T. Kluegel
Treasurer.....B. E. Noble

BRITISH CLUB.

Club Rooms Campbell Block.

President.....Fred. Harrison
Vice-President.....Geo. Bustard
Secretary.....P. K. McLean
Treasurer.....F. W. Jamison
Auditor.....H. D. Young

COUNTRY CLUB.

Organized 1906.

President.....E. I. Spalding
1st Vice-President.....A. C. Wall
2nd Vice-President.....A. F. Judd
Secretary.....G. H. Buttolph
Treasurer.....F. T. P. Waterhouse

OUTRIGGER CLUB.

Organized May, 1908.

President.....E. T. Chase
Vice-President.....G. H. Buttolph
Secretary.....P. G. H. Deverill
Treasurer.....L. C. Thompson
Captain.....G. D. Center

HUI NALU (Surf Club).

Organized 1911.

President.....Harold Castle
Vice-President.....Al. Castle
Secretary.....Robt. McB. Purvis
Treasurer.....George I. Brown
Commodore.....Duke
Captain.....J. K. Evans
Auditor.....Thos. Tredway

HAWAIIAN ASSOCIATION, A. A. U.

President.....W. T. Rawlins
Vice-President.....A. T. Longley
Sec.-Treas.Jos. Stickney
Registration Com.---J. F. Soper, Ben.
Clark, W. T. Rawlins.

KONA IMPROVEMENT CLUB, HAWAII

Organized 1912.

Rev. Albert S. Baker.....President
F. R. Greenwell.....Vice-President
W. D. McKillop.....Treasurer
L. Macfarlane.....Secretary
Executive Committee --- Rev. A. S.
Baker, Chairman; L. Macfarlane,
Secretary; J. P. Curtis, T. C. White,
R. Wallace, A. L. Greenwell, W. D.
McKillop.

AD CLUB.

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Hook and Ladder Truck—Location, Central Station, cor. Fort and Beretania.
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PRINCIPAL PUBLICATIONS.

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The Hawaiian Church Chronicle, issued on the first Saturday of every month. Rt. Rev. H. B. Restarick, Editor.

The Paradise of the Pacific, issued monthly. Mrs. E. A. Langton-Boyle, Publisher.

The Mid-Pacific Monthly, an illustrated descriptive magazine. Alex. Hume Ford, Editor and Publisher.

The Hawaiian Forester and Agriculturist, issued monthly under direction of Board of Com. Agr. and Forestry. Daniel Logan, Editor.

The Kuokoa (native), weekly, issued every Friday morning by the Hawaiian Gazette Co., Ltd. Solomon Hanohano, Editor.

Aloha Aina (native), issued every Saturday. J. T. Ryan, Editor.

Ka Holomua (native), issued each Saturday.

Ka Puuhonua (native), issued each Friday. Akaike Akana, Editor.

O Luso (Portuguese), issued weekly on Saturdays. M. G. Santos, Editor.

Chee Yow Shin Bo (The Liberty News), tri-weekly, Chinese.

Sun Chung Kwock Bo, tri-weekly. Chinese.

Hawaii Shinpo, issued daily in Japanese. H. Tsurushima, Editor.

The Daily Nippu Jiji, Y. Soga, Editor, issued by the Nippu Jiji Co., Ltd.

Hilo Daily Tribune, issued by the Tribune Pub. Co., H. E. Boothby, Editor.

The Daily Post-Herald, issued at Hilo by the Post-Herald, Ltd., M. G. Maury, Editor.

The Kohala Midget, issued each Thursday, at Kohala. Dr. J. F. Cowan, Editor.

The Maui News, issued weekly at Wailuku, Maui. L. D. Timmons, Editor and Manager.

The Weekly Times, Wailuku, Maui, issued on Tuesday, A. V. Vetleson, Publisher.

The Garden Island, issued weekly at Lihue, Kauai. K. C. Hopper, Managing Editor.

Hoku o Hawaii, issued on Friday of each week, at Hilo. Rev. S. L. Desha, Editor.

THE HAWAIIAN ANNUAL, issued the latter part of December for the following year. Thos. G. Thrum, Editor and Publisher.

HONOLULU LODGES, ETC.

- Lodge le Progrès de l'Océanie No. 371, F. & A. M.; meets on the last Monday in each month in Masonic hall.
- Hawaiian Lodge, No. 21, F. & A. M.; meets in its Hall, Masonic Temple, corner Hotel and Alakea streets, on the first Monday in each month.
- Honolulu Chapter, No. 1, R. A. M.; meets in Masonic Hall on the third Thursday of each month.
- Honolulu Commandery, No. 1, Knights Templar; meets in Masonic Hall on second Thursday of each month.
- Mystic Shrine, Aloha Temple. No stated time of meeting. Meets at Masonic Hall.
- Kamehameha Lodge of Perfection, No. 1, A. & A. S. R.; meets in Masonic Hall on the fourth Thursday of each month.
- Nuuanu Chapter of Rose Croix, No. 1, A. & A. S. R.; meets in Masonic Hall on the first Thursday in the month.
- Alexander Liholiho Council, No. 1, of Kadosh; meets on the third Monday of alternate months from February.
- Honolulu Lodge, No. 409, F. & A. M.; meets at Masonic Hall every second Monday of the month.
- Leahi Chapter, No. 2, Order of the Eastern Star; meets on third Monday of each month in Masonic Hall.
- Lel Aloha Chapter, No. 3, Order of the Eastern Star; meets on second Saturday of each month in Masonic Temple, at 7:30 p. m.
- Harmony Chapter, No. 4, Order of the Eastern Star, meets on third Saturday of each month in Masonic Temple, at 7:30 p. m.
- Excelsior Lodge, No. 1, I. O. O. F.; meets at the hall in Odd Fellows' Building, on Fort St., every Tuesday evening.
- Harmony Lodge, No. 2, I. O. O. F.; meets each Monday evening in Odd Fellows' Building, Fort street.
- Pacific Degree Lodge, No. 1, Daughters of Rebekah; meets in Odd Fellows' Building, Fort street, second and fourth Thursdays of each month.
- Olive Branch Rebekah, No. 2, I. O. O. F.; meets first and third Thursdays each month in Odd Fellows' Building.
- Polynesian Encampment, No. 1, I. O. O. F.; meets in Odd Fellows' Building, Fort street, first and third Fridays of each month.
- Canton Oahu, No. 1, P. M., I. O. O. F.; meets second Friday each month in Odd Fellows' Hall, Fort St.
- Mystic Lodge, No. 2, K. of P.; meets every Friday evening at Pythian Hall, cor. Beretania and Fort streets.
- Section N. 225—Endowment Rank, K. of P.; meets on the second Saturday of January, July and December in Pythian Hall.
- Honolulu Temple, No. 1, Rathbone Sisters; meets in Pythian Hall, first and third Tuesday evenings of each month.
- Wm. McKinley Lodge, No. 8, K. of P.; meets first and third Tuesday evenings in Pythian Hall.
- Hawaiian Tribe, No. 1, I. O. Red Men; meets on first and third Thursdays of each month at Odd Fellows' Hall.
- Court Lunailo No. 6600, A. O. of Foresters; meets at K. of P. Hall on first and third Wednesdays of each month.
- Court Camoes No. 8110, A. O. F.; meets second and fourth Tuesday evenings of month in San Antonio Hall.
- Theo. Roosevelt Camp, No. 1, Dept. of Hawaii, U. S. W. V.; first and third Saturdays, in their hall.
- Geo. C. Wiltse Camp, Sons of Veterans; meets on third Tuesday of each month in San Antonio Hall.
- Capt. Cook Lodge, No. 353, Order Sons of St. George; meets at Pythian Hall every Thursday evening.
- Court Hawaii, No. 3769, Independent Order of Foresters, meets third Monday of each month.
- Damien Council, Young Men's Institute; meets second and fourth Wednesdays of each month at Catholic Mission Hall.
- Honolulu Lodge, B. P. O. Elks, 616; meets every Friday evening in the Elks' Building, King street near Fort.
- Honolulu Aerie, No. 140, Fraternal Order of Eagles, meets second and fourth Wednesdays each month in K. of P. Hall.
- Honolulu Lodge No. 1, Modern Order of Phoenix; meets every Thursday evening at their home, cor. Fort and Beretania.
- Honolulu Lodge, L. O. O. M., No. 800, meets second and fourth Thursdays of the month in Pythian Hall.
- American Association of Masters and Pilots of Steam Vessels, Honolulu Harbor, No. 54; meets first Sunday of each month at 7 p. m. in Odd Fellows' Hall.
- Marine Engineers' Beneficial Association No. 100; meets every second and fourth Monday nights at K. of P. Hall.
- Kamehameha Lodge (native); meets last Thursday of each month in Odd Fellows' Hall.
- Kauikaeouli Lodge, No. 1 (native); meets on first and third Fridays each month in San Antonio Hall.

PLACES OF WORSHIP.

- Central Union Church, Congregational, cor. Beretania and Richards streets; Rev. A. W. Palmer, Minister, Rev. J. L. Hopwood, assistant minister. Services every Sunday at 11 a. m. and 7:30 p. m. Sunday school meets one hour before morning service. Prayer meeting Wednesday evenings at 7:30.
- Kalihi Union Church, King street, Kalihi; W. B. Coale, A.B., pastor. Sunday school at 9:45 a. m. Gospel services at 11 a. m. and 8 p. m.
- Methodist Episcopal Church, corner Beretania and Victoria streets; Rev. L. L. Loofbourou, pastor. Sunday services 11 a. m. and 7:30 p. m. Sunday school meets at 10 a. m. Prayer meeting Wednesdays at 7:30 p. m.
- The Christian Church, Kewalo street. David Carey Peters, pastor. Sunday services at 11 a. m. and 7:30 p. m. Sunday school meets at 9:45 a. m. Prayer meeting Wednesday evenings, at 7:30.
- Salvation Army, services held nightly at hall, 69 Beretania St., with Sunday services at the usual hour.
- Roman Catholic Church, Fort street, near Beretania; Rt. Rev. Libert Boeynaems, Bishop of Zeugma. Services every Sunday at 10 a. m. and 4:30 p. m. Low mass every day at 6 and 7 a. m. High mass Sundays and Saints' days at 10 a. m.
- St. Andrew's Cathedral, Protestant Episcopal; entrance from Emma street, near Beretania. Rt. Rev. Henry Bond Restarick, Bishop of the Missionary District of Honolulu; Rev. Wm. Ault, Vicar. Holy Communion, 7; Sunday school, 10; morning prayer, litany and sermon, 11; Hawaiian service, 3:30; evening prayer and sermon, 7:30.
- Chinese Congregation. Rev. Kong Yin Tet, Curate. Services on Sunday at 11 a. m. and 7:30 p. m. Evening prayer every Wednesday at 7 p. m.
- St. Clement's Chapel, Punahou. Services on Sundays. Holy Communion, 7 a. m. Morning prayer, 11 a. m.; evening prayer, 7:30 p. m. Rev. John Osborne, rector; Rev. C. H. Tracy, vicar.
- Epiphany Mission, Kaimuki, Rev. F. B. Etson, priest in charge. Sunday services at 7:30 and 11 a. m. Sunday school at 10.

- First Church of Christ, Scientist, cor. Wilder and Kewalo streets. Sunday services 11 a. m. Sunday school at 9:45.
- Christian Chinese Church, Fort street; Rev. Tse Kei Yuen, acting pastor. Services every Sunday at 10:30 a. m. and 7:30 p. m. Prayer meeting Wednesdays at 7:30 p. m.
- German Lutheran Church, Beretania St.; Dr. A. Hoermann, pastor. Services on Sunday at 11 a. m.; Sunday school at 10 a. m.
- Portuguese (Protestant) Mission; Rev. A. V. Soares, pastor. Services every Sabbath at the usual hour. Sunday school at 3 p. m. Chapel situated corner of Punchbowl and Miller streets.
- Reorganized Church of Jesus Christ. Chapel on King street, near Thomas Square; Sunday school at 10 a. m.; preaching in Hawaiian at 11 a. m.; in English at 7:30 p. m.
- Seventh Day Adventists; Rev. F. H. Conway, pastor. Chapel, 767 Kinau street. Sabbath school Saturdays at 10 a. m.; preaching at 11. Wednesday prayer and missionary meeting at 7:30 p. m.
- Japanese Union Church (connected with Hawaiian Board Missions); Rev. T. Hori, pastor. Hold services at 10 a. m. Preaching at 11 a. m. and 7:30 p. m. Sunday services. Prayer and praise meeting Wednesdays at 7 p. m.
- Korean Methodist Church, Rev. H. J. Song, pastor; Punchbowl St. near Beretania. Services at usual hours.
- Japanese Methodist Church. Rev. C. Nakamura, pastor. Hold services in chapel on River street, near St. Louis College.
- Japanese Church, cor. Kinau and Pensacola Sts., Rev. T. Okumura, pastor; hold regular services at the usual hours.
- Bishop Memorial Chapel, Kamehameha Schools, Rev. E. E. Youtz, Chaplain. Morning services at 11.

NATIVE CHURCHES.

- Kawaiahao Church, cor. King and Punchbowl streets; Rev. H. H. Parker, pastor. Services in Hawaiian every Sunday at 11 a. m. and 7:30 p. m. Sunday school at 10 a. m. Prayer meeting Wednesdays at 7:30 p. m.
- Kaumakapili Church, King street, Palama. Rev. H. K. Poepoe, pastor; Rev. S. K. Kamalopili, assistant. Sunday services at the usual hours.

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 Treasurer.....D. L. Conkling
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 Supt. Kapiolani Park—John H. Wise.

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THE First Trust Co., of Hilo LTD.

HEADQUARTERS FOR IMPROVED AND UNIMPROVED
REAL ESTATE IN THE

Volcano District

on the

Island of Hawaii

The "Vacation Island" of the Hawaiian archipelago. Here also is Halemaumau, the lake of living fire, the natural phenomenon which serves as magnet to attract thousands of tourists annually.

Home Office: Hilo, Hawaii.

Branches: Kohala, Kona and Hamakua.

Cable Address: HILOTRUST.

THE VON HAMM-YOUNG Co., LTD.

*Importers, Commission and Machinery Merchants
Dealers in Automobiles and Automobile Supplies*

AGENTS FOR

Alexander Young Building Co., Ltd.	American Blower Co. (Fans & Ventilating Apparatus)
Territorial Hotel Co., Ltd.	Armstrong Cork Co.
Palatine Ins. Co. of London	L. C. Smith Co. (Concrete Machinery)
Phoenix Assurance Co. of London	Troy Laundry Machinery Co.
Automobile Department of Hartford Fire Ins. Co.	Clyde Iron Works (Hoisting Machinery)
Union Gas Engine Co.	Western Electric Co. (Electric Apparatus and Lamps)
Otis Elevator Company	
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Cadillac Motor Car Co.	Denby Trucks
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Goodyear Tires	United States Tires
	Michelin Tires

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CORNER KING AND BISHOP STREETS — HONOLULU

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EXCURSION RATES are maintained from Saturday till Monday of each week. A delightful ride through varied and unsurpassed scenery makes excursions of the OAHU RAILWAY one of the most attractive features of the Islands, not only to the Tourist, but residents of Honolulu as well. The opportunity to visit a large Sugar Estate should not be missed by those visiting these Islands, and among others on the line of the Railway is the Ewa plantation, one of the largest in the Islands, or by the branch line to Wahiawa, eleven miles from Waipahu, inspect the extensive pineapple industry in that section, or, to Leilehua on the same branch, and visit Schofield Barracks, the principal post of the U. S. Army.



HALEIWA HOTEL
On Line of Oahu Railway

HALEIWA HOTEL. — At Waialua is a beautiful Hotel, of the most modern construction and equipment, in which guests will find all possible comfort and entertainment, combined with elegance of furnishing, tropical surroundings and healthful atmosphere. The view from the Hotel embraces Sea, Mountain, and Valley in a combination not to be enjoyed elsewhere.



W. F. DILLINGHAM, President

GEO. P. DENISON.....General Manager

HAWAIIAN ALMANAC AND ANNUAL

FOR

1919

THE REFERENCE BOOK OF INFORMATION AND STATISTICS

Relating to the Territory of Hawaii, of Value to
Merchants, Tourists and Others

THOS. G. THRUM

Compiler and Publisher

Forty-Fifth Year of Publication

Copyright 1918 by Thos. G. Thrum

HONOLULU

1918

Counting House

1919 Calendar 1919

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY		SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
JAN.	.. 5	.. 6	.. 7	1 8	2 9	3 10	4 11	JULY	.. 6	.. 7	1 8	2 9	3 10	4 11	5 12
	12 13	14 15	16 17	18 19	20 21	22 23	24 25		13 14	15 16	17 18	19 20	21 22	23 24	25 26
	26 27	28 29	30 31	.. ..	.. ..	.. ..	.. ..	AUG.	27 28	29 30	31 ..	.. ..	.. ..	.. ..	.. ..
FEB.	.. 2	.. 3	.. 4	.. 5	.. 6	.. 7	.. 8		.. 3	.. 4	.. 5	.. 6	.. 7	.. 8	.. 9
	9 10	11 12	13 14	15 16	17 18	19 20	21 22		10 11	12 13	14 15	16 17	18 19	20 21	22 23
	23 24	25 26	27 28	.. ..	.. ..	.. ..	.. ..		17 18	19 20	21 22	23 24	25 26	27 28	29 30
MAR.	.. 2	.. 3	.. 4	.. 5	.. 6	.. 7	.. 8	SEPT.	24 25	26 27	28 29	30 ..	.. ..	.. ..	.. ..
	9 10	11 12	13 14	15 16	17 18	19 20	21 22		31 ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
	23 24	25 26	27 28	.. ..	.. ..	.. ..	.. ..		.. 1	.. 2	.. 3	.. 4	.. 5	.. 6	.. 7
	30 31	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..	OCT.	7 8	9 10	11 12	13 14	15 16	17 18	19 20
APR.	.. 6	.. 7	.. 8	.. 9	.. 10	.. 11	.. 12		14 15	16 17	18 19	20 21	22 23	24 25	26 27
	13 14	15 16	17 18	19 20	21 22	23 24	25 26		21 22	23 24	25 26	27 28	29 30	31 ..	.. ..
	20 21	22 23	24 25	26 27	28 29	.. ..	.. ..	NOV.	28 29	30 ..	.. ..	.. ..	.. ..	.. ..	.. ..
MAY	.. 6	.. 7	.. 8	.. 9	.. 10	.. 11	.. 12		.. 5	.. 6	.. 7	.. 8	.. 9	.. 10	.. 11
	13 14	15 16	17 18	19 20	21 22	23 24	25 26		12 13	14 15	16 17	18 19	20 21	22 23	24 25
	20 21	22 23	24 25	26 27	28 29	.. ..	.. ..		19 20	21 22	23 24	25 26	27 28	29 30	31 ..
JUNE	.. 4	.. 5	.. 6	.. 7	.. 8	.. 9	.. 10	DEC.	26 27	28 29	30 ..	.. ..	.. ..	.. ..	.. ..
	11 12	13 14	15 16	17 18	19 20	21 22	23 24		.. 2	.. 3	.. 4	.. 5	.. 6	.. 7	.. 8
	18 19	20 21	22 23	24 25	26 27	28 29	30 31		9 10	11 12	13 14	15 16	17 18	19 20	21 22
	25 26	27 28	29 30		16 17	18 19	20 21	22 23	24 25	26 27	28 29
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	8 9	10 11	12 13	14 15	16 17	18 19	20 21		.. 1	.. 2	.. 3	.. 4	.. 5	.. 6	.. 7
	15 16	17 18	19 20	21 22	23 24	25 26	27 28		7 8	9 10	11 12	13 14	15 16	17 18	19 20
	22 23	24 25	26 27	28 29	.. ..	.. ..	.. ..		14 15	16 17	18 19	20 21	22 23	24 25	26 27
	29 30	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..		21 22	23 24	25 26	27 28	29 30	31 ..	.. ..

Thos. G. Thrum

RESEARCHER AND PUBLISHER

The Hawaiian Annual

HONOLULU, HAWAII

1 May. James ...
 at
 9-26-1923

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HAWAIIAN ANNUAL CALENDAR FOR 1919.

Second half of the twenty-first year and first half of the twenty-second year since annexation of Hawaii with the United States.

Twenty-fourth year since the downfall of the Monarchy.

The 141st year since the discovery of the Hawaiian Islands by Captain Cook.

Holidays Observed at the Hawaiian Islands.

*New Year-----	Jan. 1	*Birthday Hawn. Republic-----	July 4
Chinese New Year-----	Feb. 11	*American Anniversary-----	July 4
Lincoln's Birthday-----	Feb. 12	Labor Day (1st Monday)-----	Sept. 1
*Washington's Birthday-----	Feb. 22	*Regatta Day (3d Saturday)-----	Sept. 20
*Decoration Day-----	May 30	Thanksgiving Day-----	Nov. 27
Kamehameha Day-----	June 11	*Christmas Day-----	Dec. 25

* Those distinguished by the asterisk have been established by law.

Church Days.

Epiphany-----	Jan. 6	Ascension Day-----	May 29
Ash Wednesday-----	Mch. 5	Whit Sunday-----	June 8
First Sunday in Lent-----	Mch. 9	Trinity Sunday-----	June 15
Palm Sunday-----	Apl. 13	Corpus Christi-----	June 19
Good Friday-----	Apl. 18	Advent Sunday-----	Nov. 30
Easter Sunday-----	Apl. 20	Christmas-----	Dec. 25

Eclipses in 1919.

Courtesy of J. S. Donaghho, College of Hawaii.

In 1919 there will be two eclipses of the sun, and one of the moon, as follows:

May 28, eclipse of the sun, invisible at Honolulu.

November 7, eclipse of the moon, invisible at Honolulu.

November 22, eclipse of the sun, invisible at Honolulu.

PHENOMENA.

Visible in the early evening:

July 2, conjunction of Venus and Jupiter, with Venus about one-third of the moon's diameter north.

Visible in the early morning:

June 5, conjunction of Venus and Mars, Venus south.

September 1, conjunction of Mars and Jupiter, Mars north.

September 10, conjunction of Venus and Saturn, Venus north.

October 24, conjunction of Mars and Saturn, Mars south.

The amateur observer will be able to identify these planets for some time before and after the conjunctions, by the fact that they will appear close together.

FIRST QUARTER, 1919

JANUARY					FEBRUARY					MARCH				
D.		H. M.			D.		H. M.			D.		H. M.		
1	New Moon	9.54.1 p.m.			7	First Quar.	8.22.3 a.m.			1	New Moon	0.41.4 a.m.		
8	First Quar.	0.25.2 a.m.			14	Full Moon	1.08.2 p.m.			8	First Quar.	4.44.1 p.m.		
15	Full Moon	10.14.4 p.m.			22	Last Quar.	3.17.7 p.m.			16	Full Moon	5.11.1 a.m.		
23	Last Quar.	5.52.0 p.m.								24	Last Quar.	10.03.9 a.m.		
31	New Moon	0.37.0 p.m.								31	New Moon	11.34.9 a.m.		
Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....		Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....		Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....	
		H. M.	H. M.				H. M.	H. M.				H. M.	H. M.	
1	Wed..	6 38 15	30 0		1	Sat...	6 37 45	50 5		1	Sat...	6 20 56	4 5	
2	Thurs	6 38 45	30 6		2	SUN..	6 37 15	51 1		2	SUN..	6 19 76	4 9	
3	Fri...	6 38 65	31 3		3	Mon..	6 36 75	51 7		3	Mon..	6 18 96	5 3	
4	Sat...	6 38 95	31 9		4	Tues..	6 36 35	52 3		4	Tues..	6 18 16	5 7	
5	SUN..	6 39 15	32 6		5	Wed..	6 35 95	52 9		5	Wed..	6 17 36	6 1	
6	Mon..	6 39 35	33 3		6	Thurs	6 35 45	53 5		6	Thurs	6 16 46	6 5	
7	Tues..	6 39 55	33 9		7	Fri...	6 34 95	54 1		7	Fri...	6 15 66	6 8	
8	Wed..	6 39 75	34 6		8	Sat...	6 34 45	54 7		8	Sat...	6 14 86	7 2	
9	Thurs	6 39 95	35 3		9	SUN..	6 33 95	55 2		9	SUN..	6 13 96	7 6	
10	Fri...	6 40 15	36 0		10	Mon..	6 33 45	55 7		10	Mon..	6 13 06	7 9	
11	Sat...	6 40 25	36 7		11	Tues..	6 32 95	56 2		11	Tues..	6 12 16	8 3	
12	SUN..	6 40 35	37 3		12	Wed..	6 32 35	56 7		12	Wed..	6 11 36	8 6	
13	Mon..	6 40 45	38 0		13	Thurs	6 31 75	57 2		13	Thurs	6 10 46	8 9	
14	Tues..	6 40 45	38 7		14	Fri...	6 31 15	57 7		14	Fri...	6 9 56	9 3	
15	Wed..	6 40 45	39 4		15	Sat...	6 30 55	58 2		15	Sat...	6 8 66	9 6	
16	Thurs	6 40 45	40 1		16	SUN..	6 29 95	58 7		16	SUN..	6 7 76	9 9	
17	Fri...	6 40 45	40 8		17	Mon..	6 29 25	59 2		17	Mon..	6 6 86	10 2	
18	Sat...	6 40 35	41 4		18	Tues..	6 28 65	59 7		18	Tues..	6 5 96	10 5	
19	SUN..	6 40 35	42 1		19	Wed..	6 28 06	0 2		19	Wed..	6 4 96	10 8	
20	Mon..	6 40 25	42 8		20	Thurs	6 27 36	0 7		20	Thurs	6 4 06	11 2	
21	Tues..	6 40 15	43 4		21	Fri...	6 26 66	1 2		21	Fri...	6 3 16	11 5	
22	Wed..	6 39 95	44 1		22	Sat...	6 26 06	1 6		22	Sat...	6 2 26	11 8	
23	Thurs	6 39 85	44 8		23	SUN..	6 25 26	2 1		23	SUN..	6 1 36	12 1	
24	Fri...	6 39 65	45 4		24	Mon..	6 24 56	2 5		24	Mon..	6 0 46	12 4	
25	Sat...	6 39 55	46 1		25	Tues..	6 23 76	2 9		25	Tues..	5 59 56	12 8	
26	SUN..	6 39 35	46 7		26	Wed..	6 22 96	3 3		26	Wed..	5 58 56	13 1	
27	Mon..	6 39 05	47 4		27	Thurs	6 22 16	3 7		27	Thurs	5 57 66	13 4	
28	Tues..	6 38 85	48 0		28	Fri...	6 21 36	4 1		28	Fri...	5 56 76	13 7	
29	Wed..	6 38 55	48 6							29	Sat...	5 55 76	14 0	
30	Thurs	6 38 15	49 2							30	SUN..	5 54 86	14 3	
31	Fri...	6 37 85	49 9							31	Mon..	5 53 96	14 6	

VOLCANO OF KILAUEA, ISLAND OF HAWAII.

Corrected for Deflection of the Vertical.

Area, 4.14 square miles, or 2,650 acres.
 Circumference, 41,500 feet, or 7.85 miles.
 Extreme width, 10,300 feet, or 1.95 miles.
 Extreme length, 15,500 feet, or 2.93 miles.
 Elevation, Volcano House, 4,000 feet.

SECOND QUARTER, 1919

APRIL					MAY					JUNE				
D.		H. M.			D.		H. M.			D.		H. M.		
7	First Quar.	2.08.8	a.m.		6	First Quar.	1.03.9	p.m.		5	First Quar.	1.51.9	a.m.	
14	Full Moon.	9.55.1	p.m.		14	Full Moon.	2.31.3	p.m.		13	Full Moon.	5.58.2	a.m.	
22	Last Quar.	0.51.1	a.m.		22	Last Quar.	11.33.9	a.m.		20	Last Quar.	7.02.9	p.m.	
29	New Moon	7.00.4	p.m.		29	New Moon	2.41.9	a.m.		27	New Moon	10.22.6	a.m.	
Day of Mo...	Day of Wk...	Sun Rises...	Sun Sets...		Day of Mo...	Day of Wk...	Sun Rises...	Sun Sets...		Day of Mo...	Day of Wk...	Sun Rises...	Sun Sets...	
		H. M.	H. M.				H. M.	H. M.				H. M.	H. M.	
1	Tues.	5 53 06	14 6		1	Thurs	5 29 06	25 1		1	SUN..	5 17 26	38 1	
2	Wed..	5 52 16	15 2		2	Fri...	5 28 46	25 5		2	Mon..	5 17 16	38 5	
3	Thurs	5 51 26	15 5		3	Sat...	5 27 86	25 9		3	Tues..	5 17 16	38 9	
4	Fri...	5 50 36	15 9		4	SUN..	5 27 16	26 3		4	Wed..	5 17 06	39 3	
5	Sat...	5 49 56	16 2		5	Mon..	5 26 56	26 7		5	Thurs	5 17 06	39 6	
6	SUN..	5 48 66	16 5		6	Tues..	5 26 06	27 1		6	Fri...	5 17 06	40 0	
7	Mon..	5 47 76	16 8		7	Wed..	5 25 46	27 5		7	Sat...	5 17 06	40 4	
8	Tues..	5 46 86	17 1		8	Thurs	5 24 96	27 9		8	SUN..	5 17 06	40 8	
9	Wed..	5 45 96	17 4		9	Fri...	5 24 46	28 4		9	Mon..	5 17 06	41 1	
10	Thurs	5 45 06	17 7		10	Sat...	5 23 96	28 8		10	Tues..	5 17 06	41 5	
11	Fri...	5 44 26	18 0		11	SUN..	5 23 56	29 2		11	Wed..	5 17 06	41 8	
12	Sat...	5 43 46	18 3		12	Mon..	5 23 06	29 6		12	Thurs	5 17 16	42 1	
13	SUN..	5 42 66	18 7		13	Tues..	5 22 66	30 1		13	Fri...	5 17 26	42 4	
14	Mon..	5 41 76	19 0		14	Wed..	5 22 16	30 5		14	Sat...	5 17 46	42 7	
15	Tues..	5 40 96	19 3		15	Thurs	5 21 76	30 9		15	SUN..	5 17 56	43 0	
16	Wed..	5 40 16	19 6		16	Fri...	5 21 36	31 3		16	Mon..	5 17 76	43 3	
17	Thurs	5 39 36	20 0		17	Sat...	5 21 06	31 8		17	Tues..	5 17 96	43 5	
18	Fri...	5 38 56	20 3		18	SUN..	5 20 66	32 2		18	Wed..	5 18 06	43 8	
19	Sat...	5 37 66	20 7		19	Mon..	5 20 26	32 6		19	Thurs	5 18 26	44 1	
20	SUN..	5 36 86	21 1		20	Tues..	5 19 96	33 0		20	Fri...	5 18 36	44 3	
21	Mon..	5 36 06	21 4		21	Wed..	5 19 66	33 5		21	Sat...	5 18 56	44 5	
22	Tues..	5 35 26	21 8		22	Thurs	5 19 36	33 9		22	SUN..	5 18 76	44 7	
23	Wed..	5 34 56	22 1		23	Fri...	5 19 06	34 4		23	Mon..	5 19 06	44 9	
24	Thurs	5 33 86	22 5		24	Sat...	5 18 76	34 8		24	Tues..	5 19 26	45 1	
25	Fri...	5 33 16	22 9		25	SUN..	5 18 46	35 3		25	Wed..	5 19 56	45 2	
26	Sat...	5 32 46	23 2		26	Mon..	5 18 16	35 7		26	Thurs	5 19 86	45 3	
27	SUN..	5 31 76	23 6		27	Tues..	5 17 96	36 1		27	Fri...	5 20 16	45 4	
28	Mon..	5 31 06	24 0		28	Wed..	5 17 86	36 5		28	Sat...	5 20 46	45 5	
29	Tues..	5 30 36	24 4		29	Thurs	5 17 66	36 9		29	SUN..	5 20 76	45 7	
30	Wed..	5 29 76	24 7		30	Fri...	5 17 46	37 3		30	Mon..	5 21 06	45 8	
					31	Sat...	5 17 36	37 7						

MOKUAWEOWEO.

The Summit Crater of Mauna Loa, Island of Hawaii.

Area, 3.70 square miles, or 2,370 acres.

Circumference, 50,000 feet, or 9.47 miles.

Length, 19,500 feet, or 3.7 miles.

Width, 9,20 feet, or 1.74 miles. Elevation of summit, 13,675 feet.

THIRD QUARTER, 1919

JULY				AUGUST				SEPTEMBER			
D.		H. M.		D.		H. M.		D.		H. M.	
4	First Quar.	4.47.2 p.m.		3	First Quar.	9.41.5 a.m.		2	First Quar.	3.51.9 a.m.	
12	Full Moon	7.32.2 p.m.		11	Full Moon	7.09.5 a.m.		9	Full Moon	5.24.3 p.m.	
19	Last Quar.	9.33.0 a.m.		18	Last Quar.	8.26.1 a.m.		16	Last Quar.	11.01.7 a.m.	
26	New Moon	6.51.4 p.m.		25	New Moon	5.07.1 a.m.		23	New Moon	6.03.9 p.m.	
Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....	Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....	Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....
		H. M.	H. M.			H. M.	H. M.			H. M.	H. M.
1	Tues.	5 21 36	45 8	1	Fri...	5 33 26	38 7	1	Mon..	5 43 46	15 9
2	Wed..	5 21 66	45 9	2	Sat...	5 33 66	38 1	2	Tues.	5 43 66	15 0
3	Thurs	5 22 06	45 9	3	SUN.	5 34 06	37 6	3	Wed..	5 43 96	14 1
4	Fri...	5 22 36	45 9	4	Mon..	5 34 36	37 0	4	Thurs	5 44 16	13 2
5	Sat...	5 22 76	45 8	5	Tues.	5 34 76	36 4	5	Fri...	5 44 46	12 3
6	SUN.	5 23 06	45 8	6	Wed..	5 35 16	35 9	6	Sat...	5 44 66	11 4
7	Mon..	5 23 46	45 8	7	Thurs	5 35 56	35 3	7	SUN.	5 44 96	10 4
8	Tues.	5 23 76	45 7	8	Fri...	5 35 86	34 6	8	Mon..	5 45 26	9 5
9	Wed..	5 24 16	45 6	9	Sat...	5 36 26	34 0	9	Tues.	5 45 46	8 5
10	Thurs	5 24 46	45 6	10	SUN.	5 36 66	33 3	10	Wed..	5 45 76	7 6
11	Fri...	5 24 86	45 5	11	Mon..	5 36 96	32 7	11	Thurs	5 46 06	6 6
12	Sat...	5 25 26	45 3	12	Tues.	5 37 26	32 0	12	Fri...	5 46 26	5 7
13	SUN.	5 25 66	45 2	13	Wed..	5 37 66	31 3	13	Sat...	5 46 56	4 7
14	Mon..	5 26 16	45 0	14	Thurs	5 37 96	30 6	14	SUN.	5 46 76	3 7
15	Tues.	5 26 56	44 8	15	Fri...	5 38 36	29 9	15	Mon..	5 46 96	2 8
16	Wed..	5 26 96	44 6	16	Sat...	5 38 66	29 2	16	Tues.	5 47 26	1 8
17	Thurs	5 27 36	44 4	17	SUN.	5 38 96	28 5	17	Wed..	5 47 46	0 9
18	Fri...	5 27 76	44 1	18	Mon..	5 39 26	27 7	18	Thurs	5 47 75	59 9
19	Sat...	5 28 16	43 9	19	Tues.	5 39 56	26 9	19	Fri...	5 47 95	59 0
20	SUN.	5 28 56	43 6	20	Wed..	5 39 96	26 1	20	Sat...	5 48 25	58 0
21	Mon..	5 28 96	43 3	21	Thurs	5 40 26	25 3	21	SUN.	5 48 55	57 1
22	Tues.	5 29 36	42 9	22	Fri...	5 40 56	24 5	22	Mon..	5 48 75	56 1
23	Wed..	5 29 76	42 6	23	Sat...	5 40 86	23 7	23	Tues.	5 49 05	55 1
24	Thurs	5 30 16	42 2	24	SUN.	5 41 16	22 9	24	Wed..	5 49 25	54 2
25	Fri...	5 30 56	41 8	25	Mon..	5 41 46	22 0	25	Thurs	5 49 55	53 2
26	Sat...	5 30 96	41 4	26	Tues.	5 41 76	21 2	26	Fri...	5 49 85	52 3
27	SUN.	5 31 36	41 0	27	Wed..	5 41 96	20 3	27	Sat...	5 50 05	51 4
28	Mon..	5 31 76	40 6	28	Thurs	5 42 26	19 4	28	SUN.	5 50 35	50 4
29	Tues.	5 32 16	40 1	29	Fri...	5 42 56	18 6	29	Mon..	5 50 65	49 5
30	Wed..	5 32 46	39 7	30	Sat...	5 42 86	17 7	30	Tues.	5 50 95	48 6
31	Thurs	5 32 86	39 2	31	SUN.	5 43 16	16 8				

IAO VALLEY, ISLAND OF MAUI.

Length (from Wailuku), about 5 miles.

Width of Valley, 2 miles.

Depth, near head, 4,000 feet.

Elevation of Puu Kukui, above head of Valley, 5,700 feet.

Elevation of Crater of Eke, above Waihee Valley, 4,500 feet.

FOURTH QUARTER, 1919.

OCTOBER				NOVEMBER				DECEMBER			
D.		H. M.		D.		H. M.		D.		H. M.	
1	First Quar.	10.07.3 p.m.		7	Full Moon	1.05.2 p.m.		6	Full Moon	11.33.5 p.m.	
9	Full Moon	3.08.6 a.m.		14	Last Quar.	5.10.5 a.m.		13	Last Quar.	7.32.4 p.m.	
15	Last Quar.	6.34.7 p.m.		22	New Moon	4.49.7 a.m.		21	New Moon	2.25.2 p.m.	
23	New Moon	10.09.5 a.m.		30	First Quar.	6.16.9 a.m.		29	First Quar.	6.55.0 p.m.	
31	First Quar.	3.13.2 p.m.									
Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....	Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....	Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....
		H. M.	H. M.			H. M.	H. M.			H. M.	H. M.
1	Wed...	5 51 25	47 7	1	Sat...	6 3 25	24 0	1	Mon...	6 21 45	17 3
2	Thurs	5 51 55	46 7	2	SUN.	6 3 75	23 5	2	Tues.	6 22 05	17 4
3	Fri...	5 51 85	45 8	3	Mon...	6 4 25	23 0	3	Wed...	6 22 75	17 5
4	Sat...	5 52 15	44 9	4	Tues.	6 4 75	22 5	4	Thurs	6 23 35	17 7
5	SUN.	5 52 45	44 0	5	Wed...	6 5 35	22 0	5	Fri...	6 24 05	17 8
6	Mon...	5 52 75	43 1	6	Thurs	6 5 85	21 6	6	Sat...	6 24 65	18 0
7	Tues.	5 53 05	42 2	7	Fri...	6 6 45	21 1	7	SUN.	6 25 35	18 3
8	Wed...	5 53 35	41 3	8	Sat...	6 6 95	20 7	8	Mon...	6 25 95	18 6
9	Thurs	5 53 75	40 5	9	SUN.	6 7 55	20 3	9	Tues.	6 26 55	18 9
10	Fri...	5 54 05	39 6	10	Mon...	6 8 15	20 0	10	Wed...	6 27 15	19 2
11	Sat...	5 54 45	38 8	11	Tues.	6 8 75	19 6	11	Thurs	6 27 75	19 5
12	SUN.	5 54 75	38 0	12	Wed...	6 9 35	19 3	12	Fri...	6 28 35	19 9
13	Mon...	5 55 15	37 1	13	Thurs	6 9 95	19 0	13	Sat...	6 28 95	20 2
14	Tues.	5 55 45	36 3	14	Fri...	6 10 55	18 6	14	SUN.	6 29 55	20 6
15	Wed...	5 55 85	35 5	15	Sat...	6 11 25	18 4	15	Mon...	6 30 15	20 9
16	Thurs	5 56 15	34 7	16	SUN.	6 11 85	18 1	16	Tues.	6 30 75	21 3
17	Fri...	5 56 55	33 9	17	Mon...	6 12 45	17 9	17	Wed...	6 31 25	21 8
18	Sat...	5 56 95	33 2	18	Tues.	6 13 05	17 6	18	Thurs	6 31 85	22 2
19	SUN.	5 57 35	32 4	19	Wed...	6 13 65	17 4	19	Fri...	6 32 35	22 7
20	Mon...	5 57 65	31 6	20	Thurs	6 14 25	17 3	20	Sat...	6 32 85	23 1
21	Tues.	5 58 15	30 9	21	Fri...	6 14 95	17 2	21	SUN.	6 33 35	23 6
22	Wed...	5 58 55	30 2	22	Sat...	6 15 55	17 1	22	Mon...	6 33 85	24 1
23	Thurs	5 58 95	29 5	23	SUN.	6 16 25	17 0	23	Tues.	6 34 45	24 7
24	Fri...	5 59 45	28 8	24	Mon...	6 16 85	17 0	24	Wed...	6 34 95	25 2
25	Sat...	5 59 85	28 2	25	Tues.	6 17 45	17 0	25	Thurs	6 35 35	25 7
26	SUN.	6 0 35	27 5	26	Wed...	6 18 15	17 0	26	Fri...	6 35 85	26 3
27	Mon...	6 0 85	26 9	27	Thurs	6 18 75	17 0	27	Sat...	6 36 35	26 9
28	Tues.	6 1 35	26 3	28	Fri...	6 19 45	17 0	28	SUN.	6 36 65	27 5
29	Wed...	6 1 75	25 7	29	Sat...	6 20 05	17 1	29	Mon...	6 36 95	28 1
30	Thurs	6 2 25	25 1	30	SUN.	6 20 75	17 2	30	Tues.	6 37 35	28 7
31	Fri...	6 2 75	24 5					31	Wed...	6 37 55	29 3

HALEAKALA, ISLAND OF MAUI.

The great Crater of Maui, the largest in the world.

Area, 19 square miles, or 12,160 acres.

Circumference, 105,600 feet, or 20 miles.

Extreme width, 2.37 miles.

Extreme length, 39,500 feet, or 7.48 miles.

Elevation to summit, 10,032 feet.

Elevation of principal cones in crater, 8,032 and 1,572 feet.

Elevation of cave in floor of crater, 7,380 feet.

INTER-ISLAND DISTANCES BY SEA IN SEA MILES.

AROUND OAHU FROM HONOLULU—ESPLANADE WHARF TO

	Miles.		Miles.
Bell Buoy	1½	Pearl River Bar.....	6
Diamond Head	5	Barber's Point	15
Koko Head	12	Waianae Anchorage	26
Makapuu Point	16	Kaena Point, N. W. of Oahu....	36
Mokapu	27	Waialua Anchorage	46
Kahuku North Point.....	48	Kahuku N. Pt., Oahu, via Kaena.	58

HONOLULU TO

Lae o ka Laau, S. W. Pt. Molokai	35	Mahukona, Hawaii.....	134
Kalaupapa, Leper Settlement..	52	Kawaihae, "	144
West Point of Lanai.....	50	Kealahou, " (direct)	157
Lahaina, Maui.....	72	S. W. Pt. "	233
Kahului, "	90	Punaluu, "	250
Hana, "	128	Hilo, " (direct)	192
Maalaea, "	86	" " (windward)	206
Makena, "	96	" " (via Kawaihae).....	230

HONOLULU TO

Nawiliwili, Kauai.....	98	Hanalei, Kauai	125
Koloa, "	102	Niihau	144
Waimea, "	120		

LAHAINA, MAUI, TO

Kaluaaha, Molokai	17	Maalaea, Maui	12
Lanai	9	Makena, Maui	18

KAWAIHAE, HAWAII, TO

Mahukona, Hawaii	10	Hilo, Hawaii	85
Waipio, Hawaii	37	Lae o ka Mano, Hawaii.....	20
Honokaa, Hawaii	45	Kailua, Hawaii	34
Laupahoehoe, Hawaii	62	Kealahou, Hawaii	44

HILO, HAWAII, TO

East Point of Hawaii.....	20	Punaluu, Hawaii	70
Keauhou, Kau, Hawaii.....	50	Kaualuu, Hawaii	80
North Point of Hawaii.....	62	South Point of Hawaii.....	85

WIDTH OF CHANNELS.

Oahu and Molokai.....	23	Maui and Lanai.....	7
Diamond Head to S. W. Point of Molokai	30	Maui and Kahoolawe.....	6
Molokai and Lanai.....	7	Hawaii and Maui.....	26
Molokai and Maui.....	8	Kauai and Oahu.....	63
		Niihau and Kauai.....	15

OCEAN DISTANCES.

HONOLULU TO

San Francisco	2100	Auckland	3810
San Diego	2260	Sydney	4410
Portland, Or.	2360	Hongkong	4920
Brito, Nicaragua	4200	Yokohama	3400
Panama	4720	Guam	3300
Tahiti	2440	Manila, via N. E. Cape.....	4890
Samoa	2290	Victoria, B. C.	2460
Fiji	2700	Midway Islands	1200

OVERLAND DISTANCES.

ISLAND OF OAHU.

HONOLULU POST-OFFICE TO

	Miles.		Miles.	Inter.
Bishop's corner (Waikiki).....	3.2	Punaluu	28.4	2.0
Waikiki Villa	3.6	Hauula	31.4	3.0
Diamond Head	5.9	Lāie	34.4	3.0
Kaalawai	6.0	Kahuku Mill	37.2	2.8
	Miles. Inter.	Kahuku Ranch	40.0	2.8
Thomas Square	1.0			
Pawaa corners	2.0	Moanalua	3.4	
Kamoliili	3.3	Kalauao	7.4	4.0
Kaimuki Hill Reservoir	5.0	Ewa Church	10.2	2.8
Waialae	6.2	Kipapa	13.6	3.4
Niu	8.8	Kaukonahua	20.0	6.4
Koko Head	11.8	Leilehua	20.0	
Makapuu	14.8	Waialua	28.0	8.0
Waimanalo	20.8	Waimea	32.4	4.4
Waimanalo, via Pall... ..	12.0	Kahuku Ranch	39.4	7.0
Nuuanu Bridge	1.1			
Mausoleum	1.5	Ewa Church	10.2	
Electric Reservoir	2.7	Waipio (Brown's)	11.2	1.0
Luakaha	4.3	Hoaeae (Robinson's) ..	13.5	2.3
Nuuanu Dam	5.0	Barber's Point, L. H. ...	21.5	8.0
Pall	6.6	Nanakuli	23.5	2.0
Kaneohe	11.9	Waianae Plantation ..	29.9	6.4
Waiahole	18.9	Kahanahāiki	36.9	7.0
Kualoa	21.9	Kaena Point	42.0	5.1
Kahana	26.4	Waialua to Kaena Pt. ...	12.0	

ISLAND OF HAWAII.

SOUTH KOHALA.—WAIMEA COURT HOUSE, TO

	Miles.	Inter.		Miles.	Inter.
Hamakua boundary ...	4.5	..	Hilo, via Humuula Stn. ...	54.0	25.0
Kukuihaele Mill	11.0	6.5	Keamuku Sheep Stn. ...	14.0	..
Mana	7.7	..	Napuu	22.0	8.0
Hanaipoe	15.0	7.3	Keawewai	8.0	..
Keanakolu	24.0	9.0	Waika	11.0	3.0
Puakala	34.0	10.0	Kahuwa	13.0	2.0
Laumaia	36.5	2.5	Puuhue	17.0	4.0
Auwalakēkua	12.5	..	Kohala Court House. ...	22.0	5.0
Humuula Sheep Sation. ...	29.0	16.5	Mahukona	22.0	..
via Laumaia ..	47.5	..	Puako	12.0	..

NORTH KOHALA.—FOREIGN CHURCH, KOHALA, TO

	Miles.		Miles.
Edge of Pololu Gulch.	4.00	Union Mill	2.25
Niuli Mill	2.80	Union Mill R. R. Station.	3.25
Halawa Mill	1.65	Honomakau	2.55
Hapuu Landing	2.15	Hind's, Hawi	3.25
Kohala Mill .....	.50	Hawi R. R. Station	4.25
Kohala Mill Landing	1.50	Honoipu	7.25
Native Church	1.00	Mahukona	10.50
		Puuhue Ranch	7.25

NORTH KOHALA.—ON MAIN ROAD, MAHUKONA TO

Miles. Inter.		Miles. Inter.			
Hind's Mill	7.0	..	Wight's Corner	11.5	1.1
Union Mill Corner.....	8.0	1.0	Niuli Corner	12.8	1.3
Court House	9.2	1.2	Pololu Edge of Gulch...	14.5	1.7
Bond's Corner	9.7	0.5	Puu Hue	5.0	..
Kohala Mill Corner....	10.4	0.7			

SOUTH KOHALA.—KAWAIHAE TO

Miles. Inter.		Miles.		
Puu Ainako	4.4	..	Mana, Parker's	19.5
Puuiki	7.7	3.3	Keawewai	6.0
Wa'aka, Catholic Ch.	9.5	1.8	Puuhue Ranch	10.0
Puuopelu, Parker's	10.8	1.3	Kohala Court House	15.0
Waimea Court House....	11.8	1.0	Mahukona	11.0
Waimea Church	12.2	0.4	Napuu	20.0
Kukuihaele Church	22.1	9.9	Puako	5.0

KONA.—KEALAKEKUA TO

Keauhou	6.0	..	Kawaihae	42.0	4.6
Holualoa	9.6	3.6	Honaunau	4.0	..
Kailua	12.0	2.4	Hookena	7.7	3.7
Kaloko	16.0	4.0	Olelomoana	15.2	7.5
Makalawena	19.6	3.6	Hoopulua	21.6	6.4
Kiholo	27.6	8.0	Boundary of Kau.....	24.8	3.2
Ke Au a Lono bound'ry.	31.6	4.0	Flow of '87.....	32.0	7.2
Puako	37.4	5.8	Kahuku Ranch	36.5	4.5

KAU.—VOLCANO HOUSE TO

Half-way House	13.0	..	Honuaipo	32.6	5.0
Kapapala	18.0	5.0	Naalehu	35.6	3.0
Pahala	23.0	5.0	Waiohinu	37.1	1.5
Punaluu	27.6	4.6	Kahuku Ranch	43.1	6.0

PUNA.—HILO COURT HOUSE TO

Miles.		Miles.	
Keauu, Forks of Road.....	9.0	Kaimu	32.0
Pahoa	20.0	Kalapana	33.0
Pohoiki	28.0	Keauhou	50.0
Kapoho (Lyman's)	32.0	Panau	40.0
Opihikao	31.0	Volcano House via Panau....	56.0
Kamali	26.0	Sand Hills, Naawale, old road.	18.5
Kamali Beach	29.0	Kapoho, old road	22.0

TO VOLCANO.—HILO TO

Shipman's	1.7	Mountain View	16.8
Edge of Woods	4.1	Mason's	17.5
Coconut Grove	8.0	Hitchcock's	23.5
Branch Road to Puna.....	9.0	Cattle Pen	24.7
Furneaux's	13.2	Volcano House	31.0

THROUGH HILO DISTRICT TO

Honolili Bridge	2.5	Honohina Church	17.8
Papaikou Office	4.7	Waikaumalo Bridge	18.8
Onomea Church	6.9	Pohakupuka Bridge	21.0
Kaupakuea Cross Road	10.7	Maulua Gulch	22.0
Kolekole Bridge	14.3	Kaiwilahilahi Bridge	24.0
Hakalau, east edge gulch....	15.0	Lydgate's House	26.1
Umauma Bridge	16.0	Laupahoehoe Church	26.7

THROUGH HAMAKUA.—LAUPAHOEHOE CHURCH TO

	Miles.		Miles.
Bottom Kawaili Gulch.....	2.0	Kuaikalua Gulch	22.0
Ookala, Manager's House.....	4.0	Kapulena Church	23.9
Kealakaha Gulch	6.0	Waipanihua	24.3
Kukaiau Gulch	8.0	Stream at Kukuihaele	26.0
Horner's	8.5	Edge Waipio	26.5
Catholic Church, Kainehe.....	9.0	Bottom Waipio	27.0
Notley's, Paaulo	10.5	Waimanu (approximate)	32.5
Kaumoalii Bridge	12.5	Kukuihaele to Waimea (approximate)	10.5
Bottom Kalopa Gulch.....	14.0	Gov't. Road to Hamakua Mill..	1.5
Wm. Horner's, Paaupau.....	15.2	Gov't. Road to Paaupau Mill...	1.0
Paaupau Church	16.3	Gov't. Road to Pacific Sugar Mill, Kukuihaele	0.7
Holmes' Store, Honokaa.....	18.0		
Honokaia Church	20.5		

ISLAND OF MAUI.

KAHULUI TO

	Miles.	Inter.		Miles.	Inter.
Spreckelsville	4.0	..	Paia P. O.....	7.2	..
Paia P. O.....	7.2	3.2	Makawao Court House.....	11.6	4.4
Hamakuapoko Mill	9.2	2.0	Olinda	18.5	6.9
Haiku P. O.....	11.0	1.8	Haleakala, edge Crater.....	26.6	8.1
Halehaku	17.2	6.2	Haleakala Summit	28.6	2.0
Huelo School	20.2	3.0			
Keanae P. O.....	35.5	15.3	Maalaea	10.3	..
Nahiku Landing	49.9	14.4	End of Mountain Road.....	15.8	5.5
Ulaino School	49.2	.7	Olowalu	19.9	4.1
Hana P. O.....	55.6	6.4	Lahaina Court House.....	25.5	5.6
Hamoia	58.2	2.6			
Wailua	62.6	4.4	Waiehu	6.4	..
Kipahulu Mill	66.2	3.6	Waihee	7.3	0.9
Mokulau	71.8	5.6	Kahakuloa	16.3	9.0
Nuu	77.0	5.2	Honokohau	23.0	6.7
			Honolua	27.0	4.0
Wailuku	3.8	..	Napili	29.8	2.8
Waikapu	5.9	2.1	Honokawai	33.5	3.7
Maalaea	10.3	4.4	Lahaina Court House.....	39.0	5.5
Kihei	12.6	2.3			
Kalepolepo	13.9	1.3	MAKENA TO		
Ulupalakua	23.6	9.7	Ulupalakua	3.5	..
Kanaio	26.8	3.2	Kamaole	7.3	3.8
Pico's	33.8	7.0	Waiakoa	13.0	5.7
Nuu	40.6	6.8	Makawao P. O.....	20.8	7.8
			Makawao Court House.....	23.0	2.2

ISLAND OF KAUAI.

NAWILIWILI TO

	Miles.	Inter.		Miles.	Inter.
Koloa	11.0	..	Wailua River	7.7	4.4
Lawai	13.8	2.8	Kealia	11.9	4.2
Hanapepe	20.0	6.2	Anahola	15.7	3.8
Waimea	27.1	7.1	Kilauea	23.6	7.9
Waiawa	31.5	4.4	Kalihiwai	26.6	3.0
Nuololo	44.8	13.3	Hanalei	31.8	5.2
Hanamaulu	3.3	..	Wainiha	34.8	3.0
			Nuololo (no road)	47.0	12.2

ISLAND OF MOLOKAI.

KAUNAKAKAI TO

	Miles.		Miles.
Meyer's, Kalae	5.0	Pukoo	15.0
Kalaupapa	9.0	Halawa	25.0
Kamalo	9.0	Ka Lae o ka Laau	19.0
Kaluaaha	13.5		

OAHU RAILWAY DISTANCES.—FROM HONOLULU DEPOT TO

	Miles.		Miles.
Puuloa	6.0	Gilbert	23.0
Aiea	9.0	Nanakuli	27.0
Kalauao	10.0	Waianae	33.0
Waiau	11.0	Makaha	35.0
Pearl City	12.0	Makua	41.0
Waipio	14.0	Kawaihapai	50.0
Waipahu	14.0	Mokuleia	53.0
Leliehua	27.0	Puuiki	55.0
Wahiawa	25.0	Waialua	56.0
Hoaeae	15.0	Haleiwa Hotel	56.0
Honouliuli	16.0	Waimea	62.0
Ewa Mill	18.0	Kahuku	71.0

Revised Areas and Coast Line Distances, Hawaiian Islands.

Prepared by R. D. King, Survey Department.

Courtesy Walter E. Wall, Surveyor, Terr. Hawaii.

Islands	Popltn. in 1910	Miles Square	Acres Area	Coast Line in Miles	Altitude in Feet
Hawaii	55,382	4,015.6	2,570,000	297	13,825
Oahu	81,993	598.0	382,720	177	4,030
Maui	28,623	728.1	466,000	146	10,032
Kauai	23,744	546.9	350,000	106	5,170
Molokai	1,791	260.9	167,000	100	4,958
Lanai	131	139.5	89,305	53	3,400
Niihau	208	72.8	46,575	48	1,300
Kahoolawe	2	44.2	28,260	30	1,427
Midway	35	.....	.....	...	43
	191,909	6,406.0	4,099,860	957	

Seating Capacity of Principal Churches, Halls and Places of Amusement—Honolulu.

Roman Catholic Cathedral, Fort street	1,500
Kawaiahao Church (Native), King street	1,000
Central Union Church, Beretania street	850
St. Andrew's Cathedral (Episcopal), Emma street	800
The Bijou (vaudeville)	1,600
Ye Liberty Theater	1,600
Empire Theater (moving pictures)	930
Y. M. C. A. game hall	850
Mission Memorial Auditorium	600

**Total Population by Districts and Islands — Comparative,
1900 and 1910.**

HAWAII	1900	1910	OAHU	1900	1910
Hilo	19,785	22,545	Honolulu	39,306	52,183
Puna	5,128	6,834	Ewa	9,689	14,627
Kau	3,854	4,078	Waianae	1,008	1,958
North Kona.....	3,819	3,377	Waialua	3,285	6,770
South Kona.....	2,372	3,191	Koolauloa	2,372	3,204
North Kohala....	4,366	5,398	Koolaupoko	2,844	3,251
South Kohala....	600	922			
Hamakua	6,919	9,037		58,504	81,993
	47,843	55,382	Midway .....	.....	35
MAUI			KAUAI		
Lahaina	4,352	4,787	Waimea	5,714	7,987
Wailuku	7,953	11,742	Niihau	172	208
Hana	5,276	3,241	Koloa	4,564	5,769
Makawao	7,236	8,855	Kawaihau	3,220	2,580
	24,797	28,625	Hanalei	2,630	2,457
Molokai	3,123	1,791	Lihue	4,434	4,951
Lanai .....	.....	131		20,734	23,952
			Total whole group	154,001	191,909

Population in 1910 by Age, Groups, Sex and Race.

COLOR OR RACE	Under 21 yrs.		21 yrs. & over.		All ages.		
	Male	Female	Male	Female	Male	Female	Total
Hawaiian	5,513	5,404	7,926	7,198	13,439	12,602	26,041
Caucasian-Hawn.	2,956	2,813	1,482	1,521	4,438	4,334	8,772
Asiatic-Hawn. ...	1,363	1,391	449	531	1,812	1,922	3,734
Portuguese	6,599	6,508	4,974	4,222	11,573	10,730	22,303
Porto Rican.....	1,315	1,216	1,563	796	2,878	2,012	4,890
Spanish	610	569	468	343	1,078	912	1,990
Other Caucasian..	2,359	2,244	6,896	3,368	9,255	5,612	14,867
Chinese	3,453	2,930	13,695	1,596	17,148	4,526	21,674
Japanese	12,989	11,016	41,794	13,875	54,783	24,891	79,674
Korean	400	306	3,531	296	3,931	602	4,533
Black and Mulatto	191	196	224	84	415	280	695
All Other	1,355	245	994	142	2,349	387	2,736
Total.....	39,103	34,838	83,996	33,972	123,099	68,810	191,909

Population of Honolulu, various census periods.

1890.....	22,907	1896.....	29,926
1900.....	39,300	1910.....	52,183

Population of Honolulu and Hilo by Race and Sex, 1910.

From Tables of the Bureau of Census.

Race	Honolulu		Hilo	
	Male	Female	Male	Female
Hawaiian	3,969	3,941	369	295
Caucasian-Hawaiian	2,000	2,233	218	200
Asiatic-Hawaiian	653	727	98	122
Portuguese	3,042	3,105	552	586
Porto Rican	210	177	63	46
Spanish	141	117	37	30
Other Caucasian	5,627	3,573	382	295
Chinese	6,948	2,626	335	100
Japanese	7,659	4,434	1,699	1,080
Korean	352	108	26	1
Filipino	68	19	66	10
Negro	179	148	6	.....
All other	66	61	15	14
Total	30,914	21,269	3,866	2,879

**Comparative Table of Population, Hawaiian Islands—
Census Periods 1860-1910.**

Islands	1860	1866	1872	1878	1884	1890	1896	1900	1910
Hawaii ..	21,481	19,808	16,001	17,034	24,994	26,754	3,285	46,943	55,382
Maui	16,400	14,035	12,334	12,109	15,970	17,357	17,726	24,797	28,623
Oahu	21,275	19,799	20,671	29,236	28,068	31,194	40,205	58,504	81,993
Kauai ...	6,487	6,299	4,961	5,634	*8,935	11,643	15,228	20,562	23,744
Molokai .	2,864	2,299	2,349	2,581	} 2614	2,652	2,307	2,504	1,791
Lanai ...	646	394	348	214		174	105	619	131
Niihau ..	647	325	233	177	.....	216	164	172	208
Kahoolawe .....	.....	.....	.....	.....	.....	.....	.....	.....	2
Midway ..	.....	.....	.....	.....	.....	.....	.....	.....	35
Total ..	69,800	62,959	56,897	57,985	80,578	89,900	109,020	154,001	191,909
All Foreigners	2,716	4,194	5,366	10,477	36,346	49,368	69,516	116,366	153,362
Hawaiians	67,084	58,765	51,531	47,508	44,228	40,622	39,504	37,635	35,54

For table of Elevations of principal localities throughout the islands, see ANNUALS of 1915 and earlier.

For export values Pineapple products, 1911 to 1917, see ANNUAL for 1918, inset table at page 46.

Population by Race and Sex, 1910, and per cent of change since 1900.

RACES	Total Populat'n	Native Born	Foreign Born	Males	Females	% Change
Hawaiian	26,041	26,041	.....	13,439	12,602	12.58 dec
Caucas'n-Hawn.	8,772	8,772	.....	4,448	4,334	} 59.35 inc
Asiatic-Hawn.	3,734	3,734	.....	1,812	1,922	
Portuguese	22,303	13,766	8,537	11,573	10,730	42.28 "
Spanish	1,990	357	1,633	1,078	912	new
Porto Rican	4,890	4,830	.....	2,878	2,012	"
Other Caucas'n.	14,867	9,917	4,950	9,255	5,612	40.56 inc
Chinese	21,674	7,195	14,479	17,148	4,526	15.87 dec
Japanese	79,674	19,889	59,785	54,783	24,891	30.37 inc
Korean	4,533	362	4,171	3,931	602	} 146.03 "
Black and Mulatto..	695	602	93	415	280	
All others	2,736	2,632	104	2,349	387	
Total	191,909	98,157	93,752	123,099	68,810	24.62 ^{Net} inc.

Illiterates in the Population Territory of Hawaii, 10 Years of Age and Over, Census of 1910.

Race	Per cent.	Race	Per cent.
All races	26.8	Spanish	49.6
Hawaiian	4.7	Other Caucasian	3.5
Caucasian-Hawaiian	1.3	Chinese	32.3
Asiatic-Hawaiian	1.8	Japanese	35.0
Portuguese	35.4	Korean	25.9
Porto Rican	73.2	Filipino and all other.	32.4

Nationality of Plantation Labor, June 30, 1918 and 1917.

Courtesy Bureau of Labor and Statistics, Hawaiian Sugar Planters' Ass'n.

	1918	1917		1918	1917
Americans	702	730	Japanese	24,611	25,449
Spanish	529	946	Chinese	1,895	2,039
Portuguese	2,905	3,392	Koreans	1,299	1,370
Russians	41	49	Filipinos	9,964	9,971
Hawaiians	982	992	Others	280	306
Porto Ricans	1,500	1,451	Total	44,708	46,695

Births and Deaths by Nationalities and Counties, 1918.

Nationality	Oahu				Hawaii		Maui		Kalawao		Kauai		TOTAL	
	Honolulu		Other Dis.		B	D	B	D	B	D	B	D	B	D
	B	D	B	D										
American...	238	114	14	31	26	10	10	4	.....	15	5	303	164	
British.....	38	19	5	.....	17	4	1	4	.....	1	.....	62	27	
Chinese.....	457	203	68	39	76	34	38	33	.....	1	20	659	331	
German.....	12	14	.....	1	6	1	1	2	.....	8	9	27	27	
Hawaiian...	216	312	53	101	157	187	147	157	4	51	51	75	628	883
Part Haw'n.	509	153	75	15	174	41	156	40	12	19	55	7	981	275
Japanese...	1113	353	842	204	1356	435	676	215	.....	2	547	154	4,534	1,363
Portuguese.	299	106	111	29	306	92	207	74	.....	4	109	26	1,032	331
Porto Rican	20	15	42	12	94	37	46	20	.....	1	29	8	231	93
Spanish....	18	4	44	10	37	11	34	12	.....	23	5	156	42	
Russian....	10	5	.....	1	4	1	1	2	.....	5	.....	20	9	
Filipino....	30	62	112	71	137	106	50	52	.....	89	73	418	364	
Korean....	44	23	40	11	42	13	21	15	.....	1	34	10	181	73
Others.....	17	12	.....	5	6	4	6	3	.....	1	2	3	31	28
Unrecorded	3,021	1,395	1,406	530	2,438	976	1,394	633	16	80	988	396	9,263	4,010
Total....	3,034		1,441		2,484		1,410		16	1019	.....		9,404	

Vital Statistics, Territory of Hawaii, 1918.

For Fiscal Year ending June, compiled from Board of Health Report.
Table of Births, Marriages and Deaths by Counties.

Islands, Etc.	Est. Popltn.	Births	Marriages	Deaths
Honolulu	75,000	3,034	1,427	1,395
Other Oahu Districts.....	41,500	1,441	174	530
Hawaii County.....	69,100	2,484	466	976
Maui County.....	38,500	1,410	279	633
Kalawao County.....	680	16	18	80
Kauai County.....	31,000	1,019	208	396
Total 1917-18.....	256,180	9,404	2,572	4,010
" 1916-17.....	250,627	8,707	2,762	3,498

Hawaii's Estimated Population, 1918, by Nationality.

Race	Number	Race	Number
American, British, Ger- man, Russian.....	30,400	Japanese	106,800
Chinese	22,250	Portuguese	24,250
Filipino	20,400	Porto Rican.....	5,200
Hawaiian	22,850	Spanish	2,270
Part Hawaiian.....	16,100	Korean	5,000
		Others	660
		Total.....	256,180

School Statistics, Territory of Hawaii, 1918.

From Report of the Superintendent of Public Instruction.
NUMBER OF SCHOOLS, CLASS, ETC.

Islands	Public Schools June 30, 1918.					Private Schools Dec. 31, 1917.		
	No. of Schools	No. of Teachers	No. of Pupils			No. of Schools	No. of Teachers	No. of Pupils
			Boys	Girls	Total			
Hawaii.....	63	261	5,084	4,464	9,552	8	29	1,019
Maui, Molokai....	44	157	2,691	2,403	5,094	10	40	1,125
Kauai.....	20	129	2,494	2,136	4,630	37	258	5,093
Oahu.....	41	420	7,979	7,088	15,067	2	3	64
Totals.....	168	967	18,248	16,091	34,343	57	330	7,301

NUMBER OF SCHOOLS, TEACHERS AND PUPILS.

Class	Schools	Teachers			Pupils		
		M.	F.	Total	M.	F.	Total
Public Schools.....	168	144	823	967	18,248	16,095	34,343
Private ".....	57	81	249	330	3,953	3,348	7,301
Totals.....	225	225	1072	1,297	22,201	19,443	41,644

AGES OF PUPILS IN PUBLIC AND PRIVATE SCHOOLS.

Schools	Under 6	6-9	10-15	Over 15	Total
Public Schools.....	25	15,117	17,702	1,499	34,343
Private ".....	1,556	1,633	2,844	1,268	7,301
Total.....	1,581	16,750	20,546	2,767	41,644

NATIONALITY OF PUPILS.

Races	Public	Private	Races	Public	Private
Hawaiian.....	3,216	689	Spanish.....	489	49
Part Hawaiian...	3,805	1,384	Chinese.....	3,305	1,129
American.....	849	1,024	Japanese.....	15,101	1,315
British.....	108	74	Porto Rican....	1,032	68
German.....	126	71	Korean.....	409	131
Portuguese.....	5,001	1,220	Russian.....	125	30
Filipinos.....	626	72	Other Foreigners	151	45
			Total.....	34,343	7,301

**Value Domestic Mdse. Shipments to the United States from
Hawaii for Fiscal Years Ending June 30, 1917 and 1918.**

Compiled from Monthly Summary of Commerce and Finance,
Bureau of Statistics.

Articles.	1917	1918
Animals	\$ 786	\$ 3,655
Art works, paintings, etc.....	1,315	228
Bones, hoofs, etc.....	4,871	2,597
Beeswax	7,497	8,708
Breadstuffs	12,813	15,385
Chemicals, drugs, etc.	3,173	1,112
Coffee	297,972	275,733
Cotton and manufactures of	1,843	.....
Fibers, unmanufactured—Sisal	89,543	127,987
Fruits and nuts	8,194,284	8,525,676
Hides and skins	295,216	398,719
Honey	62,462	161,930
Household and personal effects.....	24,527	230,034
Meat products, tallow	18,578	65,582
Molasses	392,110	634,671
Musical instruments	85,167	42,356
Paper and manufactures of	1,518	407
Pineapple juice	36,529	2,604
Rice	165,779	84,813
Straw and palm leaf, manufactures of	550	203
Sugar, brown	60,137,962	62,076,956
Sugar, refined	2,603,202	2,031,584
Tobacco leaf, unmanufactured	1,205	25,910
Vegetables	16,080	39,580
Wool, raw	27,395	81,805
Wood and manufactures of	93,992	20,167
All other articles	38,265	319,116
Total value shipments Hawaiian products.	72,614,625	\$75,177,518
Returned shipments merchandise	1,751,313	4,083,376
Total foreign merchandise.....	112,122	132,032
Total shipments merchandise.....	\$74,478,060	\$79,392,926

Shipments of Gold and Silver, 1918.

From United States to Hawaii:

Gold	\$1,895,000
Silver	92,800

From Hawaii to United States:

Gold	193,300
Silver	196

Import Values from United States, Comparative, for Fiscal Years Ending June, 1917 and 1918.

Compiled from Monthly Summary of Commerce and Finance,
Bureau of Statistics.

Articles.	Domestic Merchandise	
	1917	1918
Agricultural Implements	\$ 58,583	\$ 58,134
Animals	233,363	119,994
Automobiles and parts of	2,111,997	1,836,458
Books, Maps, Engravings, etc.	524,435	372,181
Boots and Shoes	875,010	652,644
Brass, and manufactures of	178,108	167,604
Breadstuffs	3,142,022	3,039,729
Brooms and Brushes	60,794	52,317
Carriages, Cars, etc., and parts of	278,075	237,765
Cement	538,235	523,030
Chemicals, Drugs, Dyes, etc.	649,878	670,451
Clocks, Watches, and parts of	45,325	37,839
Coal	125,457	157,411
Cocoa and Chocolate	66,361	55,693
Coffee, prepared	6,964	8,425
Copper, and manufactures of	201,006	90,601
Cotton, manufactures of, and clothing	3,416,098	2,895,748
Earthen, Stone and Chinaware	135,994	124,626
Eggs	120,000	205,156
Electrical Machinery and Instruments	1,004,966	1,049,174
Explosives	422,973	184,344
Fertilizers	2,127,381	2,035,300
Fibers, Textile Grasses, manufactures of	337,453	510,705
Fish	473,566	654,863
Fruits and Nuts	548,693	566,073
Furniture of Metal	114,134	79,944
Glass and Glassware	298,518	259,091
Hay	376,049	326,505
Household and Personal Effects	132,926	66,984
India Rubber, manufactures of	1,105,487	1,494,698
Instruments, etc., for scientific purposes	21,095	19,952
Iron and Steel, and manufactures of	347,968	413,173
Sheets and Plates, etc.	348,245	328,368
Builders' Hardware, etc.	731,660	472,837
Machinery, Machines, parts of	1,587,687	1,557,405
Nails, Spikes, Pipes, etc.	3,819,117	2,791,816
Jewelry and manufactures, Gold and Silver ..	218,083	215,981
Lamps, Chandeliers, etc.	43,007	35,233
Lead and manufactures of	86,779	100,935
Leather and manufactures of	457,279	240,772
Marble, Stone, and manufactures of	61,674	27,947
Musical Instruments	153,270	150,976

Import Values from United States for 1917-18—Continued.

Articles.	Domestic Merchandise	
	1917	1918
Naval Stores	\$ 11,505	\$ 13,908
Oil Cloth	30,171	27,302
Oils: Mineral, Crude	1,586,373	2,176,174
Refined, etc.	1,654,499	1,913,753
Vegetable	141,753	157,314
Paints, Pigments and Colors	488,198	409,425
Paper and manufactures of	791,671	567,129
Perfumery, etc.	74,735	97,439
Phonographs, etc.	59,883	50,814
Photographic Goods	204,941	181,720
Provisions, etc., Beef Products	202,025	42,059
Hog and other Meat Products	963,792	698,048
Dairy Products	878,816	678,447
Rice	267,423	594,698
Roofing Felt, etc.	42,096	40,355
Salt	28,249	29,613
Silk and manufactures of	263,914	226,108
Soap: Toilet and other	321,454	350,835
Spirits, etc.: Malt Liquors	249,676	194,316
Spirits, distilled	209,037	197,489
Wines	291,653	342,723
Starch	22,367	18,736
Straw and Palm Leaf, manufactures of	125,487	125,840
Sugar, Molasses and Syrup	112,192	92,261
Confectionery	231,511	186,075
Tin and manufactures of	1,287,624	2,177,513
Tobacco, manufactures of	978,773	1,065,689
Toys	76,523	75,428
Vegetables	710,543	609,393
Wood and Mfrs.:		
Lumber, Shingles, etc.	1,222,969	957,740
Shooks, box	415,918	536,501
Doors, Sash, Blinds	148,914	142,326
Furniture	359,093	233,059
Trimnings, Molding and other manfrs.	500,640	523,749
Wool and manufactures of	445,679	481,888
All other articles	990,446	2,239,864
Total value merchandie shipments.....	\$43,967,256	\$43,646,515
Total value foreign merchandise from U.S.	307,219	.....

Quantity and Value of Principal Articles of Domestic Produce**Shipped for the Fiscal Year Ending June 30, 1918.**

Compiled mainly from Monthly Summary of Commerce and Finance, Bureau of Statistics.

Articles		Quantity	Value
Sugar, raw	pounds...	1,053,701,147	\$62,076,956
Sugar, refined	"	27,227,446	2,032,811
Coffee, raw	"	3,206,202	466,736
Rice	"	1,247,721	84,813
Fibers, sisal	tons.....	323	127,987
Fruits: Fresh Bananas	bunches..	153,583	109,637
Fresh Pineapples .....	.....	.....	10,236
Canned Pineapples .....	.....	.....	8,394,307
All other .....	.....	.....	10,892
Pineapple Juice .....	.....	.....	2,604
Beeswax	pounds...	23,932	8,708
Honey .....	.....	.....	161,930
Molasses	gallons..	14,671,477	634,671
Hides and Skins	pounds...	1,734,919	398,719
Wool, raw	"	188,091	81,805
Timber, lumber & unmnfrd wood	M ft.....	1	175
Fruits and nuts, foreign.....	.....	.....	115,162

Hawaiian Imports and Exports, Fiscal Year 1918.

Courtesy of Collector of Customs.

Countries:	Imports to June 30.	Exports to March 31.
Australia	\$ 118,443	\$ 20,284
Br. Oceania	71,974	161,923
Br. India	834,512	.....
Canada *	345,340	88,856
Chile	1,001,069	.....
England	59,090	196
France	4,304	.....
Germany	6,064	.....
Hongkong	385,011	11,125
Japan	3,672,468	626,624
Scotland	9,901	.....
Other	288,852	242,210
United States	45,004,156	79,395,388
Totals.....	\$51,801,184	\$80,556,606

* The tables from the Summary of Commerce and Finance, on pages 21-23, differ in the amounts here shown.

Expense of Legislatures.

From Governor's Report, 1917.

Year.	Cost of Session	Cost per day	Bills Intro..	Bills passed.	Cost per bill passed
1911	\$70,245.84	\$1,170.75	410	169	\$415.66
1913	83,495.75	1,391.59	466	170	491.15
1915	71,478.67	1,191.31	498	226	316.28
1917	84,087.23	1,401.45	607	241	348.91

Number and Tonnage of Vessels Entering and Clearing at all Ports, District of Hawaii, 1918.

[Not including Transports and bunker coal vessels.]

	Entered		Cleared	
	Vessels	Tons	Vessels	Tons
Honolulu —Coastwise	260	726,607	277	810,842
Foreign	149	538,783	125	476,129
Hilo —Coastwise	48	77,557	36	64,370
Foreign	0	.....	1	1,105
Kahului —Coastwise	15	17,948	17	21,422
Foreign	1	1,778	0	.....
Koloa —Coastwise	7	4,708	14	9,482
Foreign	6	4,953	0	.....
Mahukona —Coastwise	3	2,177	9	7,471
Foreign	0	.....	0	.....
Total	489	1,374,511	479	1,390,821

Summary of Insurance Business, Territory of Hawaii, for 1917 From Report of Insurance Commissioner.

Class	Amount Written	Amount Premiums	Losses and Claims paid
Fire	\$ 48,508,089.66	\$ 857,887.65	\$ 41,714.87
Marine	142,081,106.34	452,523.41	175,036.64
Life	6,599,187.00	*1,220,108.49	297,364.31
Accident and Health.....	.....	56,864.84	15,926.86
Automobile .....	.....	65,944.54	18,360.97
Burglary .....	.....	861.46	43.19
Employers' Liability.....	.....	13,715.24	7,070.70
Surety and Fidelity.....	.....	49,153.68	2,947.99
Plate Glass.....	.....	3,083.48	856.20
Workmen's Compensation.	.....	126,738.97	30,495.86
Other .....	.....	8,232.39	452.25
Total.....	\$197,168,383.00	\$ 2,855,114.15	\$ 590,269.84

* Of this amount \$869,860.19 is renewals.

Passengers to and from Hawaii, Fiscal Year, 1918.

Courtesy R. L. Halsey, Immigration Service.

	Arrivals			Departures		
	Males	Females	Total	Males	Females	Total
Insular Possns..	* 5	0	5	5	2	7
" "	†2,469	469	†2,938	943	173	†1,116
Mainland	* 332	202	534	757	568	1,325
" "	†2,339	2,269	4,608	2,425	1,775	4,200
Foreign Ports..	*2,281	2,429	4,710	2,890	1,519	4,409
" "	† 396	308	704	1,239	1,228	2,467
Total.....	7,822	5,677	13,499	8,259	5,265	13,524

* Aliens. † U. S. A. Citizens. ‡ Including Filipinos.

Hawaiian Sugar Export Statistics from 1910

For earlier years see Annuals 1896-1914.

Year	Sugar		Molasses		Ttl. export Value
	Pounds	Value	Gallons	Value	
1910	1,111,594,466	42,625,062	100	7	42,625,069
1911	1,011,215,858	36,704,656	1,801,796	89,708	36,794,364
1912	1,205,465,510	49,961,509	1,734,318	77,241	50,038,750
1913	1,085,362,344	36,607,820	3,736,877	140,610	36,748,430
1914	1,114,750,702	33,187,920	4,110,404	149,597	33,337,517
1915	1,280,917,435	52,953,009	5,202,913	195,485	53,148,594
1916	1,137,164,228	54,418,300	8,399,014	327,284	54,745,584
1917	1,162,805,056	62,741,164	10,979,383	392,110	63,133,274
1918	1,080,908,797	64,108,540	14,671,477	634,671	64,743,211

Hawaii's Annual Trade Balance, etc., from 1910.

Year	Imports	Exports	Excess export Values	Custom house Receipts
1910	26,152,435	47,029,631	20,877,196	1,450,324
1911	28,065,626	42,666,197	14,600,571	1,654,761
1912	28,694,322	55,449,438	26,755,116	1,643,197
1913	37,519,620	43,471,830	5,952,210	1,869,513
1914	31,550,257	41,594,072	6,043,815	1,184,416
1915	26,416,031	62,464,759	36,048,728	1,019,534
1916	34,098,210	64,670,852	30,572,642	1,161,051
1917	46,358,341	75,115,983	28,757,642	1,169,085
1918	51,801,204	80,545,606	28,744,402	1,009,243

Receipts, Expenditures, and Public Debt of Hawaii, from 1910.

(From Official Reports.)

Years	Revenue	Expenditures	Cash Balance in Treasury	Public Debt
1910	3,641,245.35	3,435,082.87	845,218.51	4,079,000.00
1911	3,482,560.84	3,730,765.16	822,282.07	4,004,000.00
1912	3,963,588.55	4,002,483.00	690,550.70	5,454,000.00
1913	4,300,780.71	4,261,468.66	716,729.60	6,844,000.00
1914	3,925,187.95	4,263,863.64	366,001.24	6,844,000.00
1915	4,539,241.04	4,446,415.65	464,040.43	7,873,500.00
1916	5,626,905.33	5,553,700.66	539,388.71	8,024,000.00
1917	5,944,352.95	5,638,429.13	889,508.42	7,874,000.00
1918	7,208,047.73	7,441,043.45	711,517.21	8,749,000.00

Hawaiian Corporations, 1918.

Tables Courtesy of Treasury Department.

Class.	Total No.	Number and Capital Incorporated before and after Aug. 12, 1898				Total
		No.	Before	No.	After	
Agriculture ..	153	47	\$47,966,750	106	\$35,909,015	\$ 83,875,765
Mercantile ...	433	39	19,901,125	394	43,815,093	63,716,218
Railroad	9	5	7,370,000	4	7,139,960	14,509,960
Street Car...	2	...	.....	2	1,950,000	1,950,000
Steamship ...	2	1	3,000,000	1	6,000	3,006,000
Bank	7	1	600,000	6	1,650,000	2,250,000
Savgs. & Loan	13	...	.....	13	776,000	776,000
Trust	7	1	200,000	6	900,000	1,100,000
Insurance ...	2	...	.....	2	200,000	200,000
Eleemosynary	164	34	.....	130	.....	.....
Total....	792	128	\$79,037,875	664	\$92,346,068	\$171,383,943

Growth of Bank Deposits, Territory of Hawaii.

Fiscal Year—	No. Banks	Commercial Deposits	Savings Deposits	Total
1910	11	9,033,385.97	4,290,919.57	13,324,305.54
1911	16	10,289,707.89	5,020,555.62	15,310,263.51
1912	17	12,667,162.39	5,521,973.11	18,189,135.50
1913	17	11,641,901.30	5,384,395.72	17,026,297.02
1914	18	10,371,874.60	6,275,790.63	16,647,665.23
1915	19	12,378,041.53	7,736,569.32	20,114,610.85
1916	19	17,317,339.40	9,061,910.28	26,379,249.68
1917	22	22,486,524.31	10,205,496.70	32,692,021.01
1918	23	24,620,004.80	9,892,708.08	34,512,712.88

Assessed Values Real and Personal Property (by races) for 1918.

Taxpayers	Real Estate		Personal Property	
	No. Tax payers	Assessed Value	No. Tax payers	Assessed Value
Corporations, etc....	817	\$ 88,643,557	1,044	\$ 88,665,035
Anglo-Saxons	3,379	24,306,847	2,208	3,976,871
Hawaiians	5,921	11,814,622	1,977	1,798,342
Chinese	1,074	2,801,484	1,590	1,578,635
Japanese	1,056	1,645,722	3,336	4,267,695
Portuguese & Spanish	2,511	5,331,088	1,539	821,069
Total.....	14,758	\$134,543,320	11,694	\$101,107,647

Arrivals and Departures of Shipping for Fiscal Year Ending June, 1918.

Compiled from Board of Harbor Commissioners Report.

Months	Honolulu				Hilo	
	Sail		Steam		Vessels	
	No.	Tons	No.	Tons	No.	Tons
July	10	16,044	43	286,338	11	47,439
Aug.	11	9,529	47	320,365	11	37,190
Sept.	8	9,195	35	225,289	6	30,117
Oct.	11	15,111	33	206,022	9	35,377
Nov.	7	6,175	47	289,717	5	26,394
Dec.	17	22,442	40	223,664	5	18,113
Jan.	8	11,604	59	332,608	3	6,340
Feb.	6	3,264	40	244,724	3	20,223
Mar.	15	13,025	43	235,314	8	16,488
Apl.	8	8,042	35	206,919	6	26,963
May	14	12,938	42	255,607	6	14,400
June	4	5,993	35	160,233	6	16,924
Total.....	119	133,362	499	2,986,800	79	295,968

Kahului repors 69 vessels, of 297,603 tons.

Port Allen reports 30 vessels, of 87,221 tons.

Export Value Pineapple Products.

	1916	1917	1918
Fresh Pineapples	\$ 77,111	\$ 23,546	\$ 10,236
Canned Pineapples	6,547,053	7,970,522	8,394,307
Pineapple Juice	8,750	30,520	2,604
Total.....	\$6,632,914	\$8,024,588	\$8,407,147

Value of Imports from Foreign Countries, 1918.

Bags	\$ 728,835	Fertilizers	\$ 3,456
Chemicals	1,070,221	Food Supplies	2,914,422
Coal	374,412	Spirits	76,963
Cottons	256,001	Miscellaneous	1,372,686
Total.....			\$6,797,048

Hawaii's Bonded Debt, June 30, 1918.

Refund Bonds, 1905, 4%	\$ 270,000
Public Improvement 3½% Bonds	1,244,000
Public Improvement 4½% Bonds	7,235,000
Total Bonds Outstanding.....	\$8,749,000

Pack of Hawaiian Canned Pineapple

Compiled from the Records of the Hawaiian Pineapple Packers' Association.

	1911	1912	1913	1914	1915	1916	1917
Hawaiian Pineapple Company.....	286,325	523,676	598,837	685,071	790,526	786,731	740,596
Haiku Fruit & Packing Company.....	100,409	100,178	140,600	207,216	182,951	144,462	172,515
Pearl City Fruit Company.....	31,825	80,352	84,451	93,533	115,747	69,790	64,198
Hawaiian Islands Packing Company.....	42,000	82,930	114,181	152,310	169,439	203,391	187,289
Kauai Fruit and Land Company.....	15,966	31,020	53,152	65,846	75,503	84,992	90,030
Thomas Pineapple Company.....	49,300	99,185	94,082	107,056	133,284	168,276	74,087
Libby, McNeill & Libby of Honolulu.....	49,456	141,318	223,555	491,639	605,717	579,913	623,083
Maui Pineapple Company.....	8,268	25,177	46,270	80,682	98,363	97,156	108,601
Hawaii Preserving Company.....	141,693	229,527	311,994	379,453	469,906	431,145	482,402
Honolua Ranch .....	.....	.....	.....	5,975	9,180	18,222	19,498
Hawaiian Canneries Company.....	.....	.....	.....	.....	19,000	25,405	44,732
Total number of cases for the respective years.....	725,742	1,313,363	1,667,122	2,268,781	2,669,616	2,609,483	2,607,031

PINEAPPLE COMPANIES OPERATING IN THE HAWAIIAN ISLANDS

Company:	Office Location:	Manager:	Representatives:
Hawaiian Pineapple Co., Ltd.....	Honolulu, Oahu	James D. Dole	Hawn. Pineapple Co., Ltd., San Francisco
Libby, McNeill & Libby, Ltd.....	Honolulu, Oahu	C. P. Judkins.....	} Libby, McNeill & Libby, San Francisco
Thomas Pineapple Co., Ltd.....	Honolulu, Oahu	C. H. Medcalf.....	
Cal. Packing Corporation.....	Honolulu, Oahu	Alfred W. Eames ..	Cal. Packing Corporation, San Francisco
Pearl City Fruit Co., Ltd.....	Waiawa, Oahu	A. E. Lister	Haiku Fruit & Packing Co., Ltd., San Fran.
Haiku Fruit & Packing Co., Ltd.....	Haiku, Maui	Harold W. Rice.....	T. H. Davies & Co., Honolulu
Honolua Ranch	Honolua, Maui	D. T. Fleming	Alexander & Baldwin, Ltd., Honolulu
Kauai Fruit & Land Co., Ltd.....	Homestead, Kauai	W. D. McBryde	Kelly Clark, Seattle
Hawaiian Canneries Co., Ltd.....	Kapaa, Kauai	Albert Horner	James F. Morgan & Co., Ltd., Honolulu

Taxes by Division and Counties for the Fiscal Year Ended June 30, 1918.

Courtesy of Auditing Department.

DIVISION OF TAXES	OAHU.	MAUI.	HAWAII.	KAUAI.	TOTALS.
Special Territorial	\$ 47,014.95	\$	\$	\$	\$ 47,014.95
Real Estate	1,011,911.65	335,733.93	452,706.95	167,197.70	1,967,550.23
Personal Property	690,253.45	224,743.76	370,161.19	178,486.35	1,463,644.75
Penalties	1,927.05	163.51	275.90	24.05	2,390.51
Court Costs and Interest	7,036.62	864.78	1,867.89	21.95	9,791.24
Bicycles	2,998.60	616.00	828.70	403.70	4,847.00
Automobiles	100,660.78	23,701.86	30,370.05	15,836.75	170,569.44
Carriages, Carts, Etc.	11,490.00	3,270.00	4,853.90	3,310.00	22,923.90
Brakes and Sulkies	412.00	114.00	468.00	262.00	1,256.00
Road	44,698.05	20,259.10	31,915.43	15,820.55	112,693.13
Poll	22,069.24	10,035.98	15,782.29	7,887.65	55,775.16
Dog and Dog Tags	2,472.96	956.67	2,145.15	730.45	6,305.23
School	43,323.33	20,072.12	31,576.13	15,775.20	110,746.78
Income	660,902.91	74,500.14	40,800.77	18,223.40	794,427.22
Special Income	286,927.65	34,583.60	15,091.49	6,518.40	343,121.14
Total	\$2,934,099.24	\$749,615.45	\$998,843.84	\$430,498.15	\$5,113,056.68

Summary of Meteorological Observations, Honolulu, 1917-18.

Compiled from U. S. Weather Bureau Records, by L. H. Dalingenfield, Meteorologist.

(Continued from preceding Annuals.)

MONTH	BAROMETER		RAIN FALL	REL. HUM.		TEM- PERATURE		MEAN TEMPERATURE				Cloud Am't	Wind Velocity
	8 a.m.	8 p.m.		8 a.m.	8 p.m.	Max.	Min.	6 a.m.	2 p.m.	9 p.m.	Meas. of Max. and Min.		
July	30.07	30.06	0.56	61	66	84	69	73.8	81.0	75.6	77	4.4	8.3
August	30.07	30.06	1.12	61	66	86	71	75.1	82.3	76.6	79	4.1	7.8
September	30.05	30.04	0.67	64	66	85	70	74.5	82.1	76.9	78	3.7	7.8
October	29.98	29.98	1.47	66	70	85	68	74.0	80.3	75.4	77	4.1	6.2
November	30.04	30.03	3.07	69	72	83	61	71.9	78.1	74.3	75	5.2	7.5
December	29.95	29.95	4.64	72	73	82	65	71.1	76.6	72.5	73	5.4	7.6
January	29.98	29.96	5.89	72	72	82	57	69.2	75.2	71.2	72	6.4	7.5
February	30.00	30.01	3.14	71	71	80	62	68.5	73.9	70.2	71	5.8	9.2
March	30.01	29.99	4.78	70	73	82	62	67.8	74.1	69.3	71	6.5	8.0
April	29.98	29.97	6.87	71	74	80	64	68.9	74.1	70.3	72	8.3	9.9
May	30.01	30.00	0.40	65	70	83	65	71.4	77.8	73.1	75	5.7	8.1
June	30.00	29.98	0.87	66	68	84	69	73.2	78.9	74.6	76	4.7	8.7
Year	30.01	30.00	33.48	67.3	70.1	83.0	65.2	71.6	77.9	73.3	74.7	5.4	8.0

TABLE OF RAINFALL, Principal Stations.

Compiled from Weather Bureau Reports.

Stations	Observer	1917					
		July	Aug.	Sept.	Oct.	Nov.	Dec.
HAWAII							
Waiakea.....	D. Forbes	7.17	3.58	3.45	4.74	16.24	10.26
Hilo (Town).....	L. C. Lyman	4.77	2.42	2.50	4.45	14.19	6.47
Ponahawai.....	J. E. Gamalielson	7.15	3.56	2.53	4.41	13.98	9.42
Pepeekeo.....	Pepeekeo S. Co.	6.00	4.06	3.96	2.87	15.04	7.60
Hakalau.....	W. F. Klatt	6.45	2.91	2.56	3.06	13.57	6.39
Laupahoehoe.....	E. W. Barnard..	4.01	1.10	0.92	4.30	14.54	6.09
Ookala.....	Kaiwiki S. Co..	2.92	0.77	0.59	3.04	14.87	6.80
Kukalau Mill.....	A. R. Phillip....	4.42	.....	0.30	2.06	15.05	5.99
Paauhau.....	G. B. Wait.....	0.93	0.06	0.09	0.71	8.17	3.70
Honokaa.....	Hon. Sug. Co....	0.98	0.15	0.13	0.78	7.98	2.32
Waimea.....	F. Pinho	0.81	1.06	4.34	4.48	2.90	2.24
Kohala.....	Dr. B. D. Bond..	1.08	1.00	0.47	0.88	4.84	3.18
Holualoa.....	Kona Dev. Co..	10.28	9.15	8.96	11.57	1.80	3.89
Kealakekua.....	Robt. Wallace..	9.10	7.02	7.94	13.49	2.73	4.00
Naalehu.....	Hutch'n S. P. Co.	0.22	0.32	0.12	2.15	0.90	8.21
Pahala.....	Haw. Agr. Co..	0.54	0.35	0.69	3.69	0.63	8.50
Volcano Obs.....	T. A. Jaggar Jr.	2.29	1.95	1.90	2.25	5.45	5.68
Olaa (17 miles)...	Olaa Sugar Co..	6.03	3.82	4.06	4.10	17.54	5.93
Kapoho.....	H. J. Lyman ...	4.52	4.63	2.83	6.29	5.39	6.32
MAUI							
Haleakala Ranch.	Hal. Ranch Co..	.00	0.97	3.64	4.01	4.74	3.39
Puuomalei.....	A. McKibbin ...	1.90	2.26	2.06	5.42	4.96	6.14
Makawao.....	F. W. Hardy	0.57	1.36	2.35	4.61	5.60	4.75
Kula.....	A. von Tempsky	1.22	1.50	1.75	3.86	1.74	3.60
Haiku.....	Mrs. L.B. Atwater	1.71	2.28	1.33	2.53	5.98	4.30
Keanae Valley...	G. W. Weight..	8.68	8.55	4.88	4.20	14.64	8.31
Wailuku.....	Bro. Frank	0.09	0.76	0.20	0.36	1.42	4.01
Hana.....	Kaeleku S. Co..	3.96	3.68	2.07	7.53	4.29	4.87
OAHU							
Honolulu.....	U. S. Weath. Bu.	0.56	1.12	0.67	1.47	3.07	4.64
Kinaiu Street.....	W. R. Castle ...	0.40	1.07	0.47	1.77	3.51	4.10
Manoa.....	U. S. Geol. Surv.	4.85	4.34	4.30	4.48	11.08	5.50
Electric Lt. St.....	A. Walker	5.73	6.27	9.42	3.32	7.39	7.94
Luakaha.....	L. A. Moore	5.31	9.75	6.53	5.40	12.98	11.51
Waimanalo.....	Ed. Todd	0.28	6.61	1.18	5.50	5.19	8.61
Maunawili.....	Jno. Herd	2.37	3.38	5.68	4.87	7.70	8.35
Waialua Mill.....	Wail. Agrl. Co..	0.64	2.18	2.73	2.00	3.26	4.41
Kahuku.....	H. T. Christfrsn.	1.02	1.20	2.43	1.50	3.61	5.45
Ewa Plantation..	I. A. Hattie	0.42	1.55	1.05	0.87	1.39	5.19
Schofield Brks...	Surgeon U.S.A..	1.33	1.57	4.56	2.38	2.45	10.88
Waiawa.....	A. Lister	3.25	1.95	4.82	5.24	7.90	7.26
Waimalu.....	Hon. Plan. Co..	1.20	1.82	2.82	2.56	5.35	7.26
KAUAI							
Grove Farm.....	G. N. Wilcox ...	5.24	3.08	4.34	3.15	3.64	3.42
Kealia.....	Makee Sgr. Co..	3.95	1.23	3.07	3.39	3.10	1.34
Kilauea.....	Kilauea Sug. Co.	5.88	7.57	5.55	5.20	4.71	3.26
Eleele.....	McBryde S. Co..	1.90	1.89	0.99	4.21	1.16	4.67
Kukuiula.....	F. L. Zoller	2.93	2.40	3.55	2.80	2.40	3.25
Waiawa.....	Kekaha Sug. Co.	1.25	.00	0.44	7.75	.00	4.35

Throughout the Hawaiian Islands, 1917-1918.

By A. M. Hamrick, Section Director. Continued from last Annual.

Locality	Ft. Elv.	1918						
		Jan.	Feb.	Mar.	Apr.	May	June	Year
HAWAII								
Waiakea	50	20.83	31.98	25.49	28.05	17.14	9.64	178.57
Hilo	100	13.89	29.43	21.78	16.68	14.47	.....	.....
Ponahawai	500	24.33	43.64	24.05	29.18	19.33	11.40	192.98
Pepeekeo	100	20.80	26.77	24.04	22.98	9.06	10.44	153.62
Hakalau	200	20.51	24.71	28.50	27.20	15.34	11.83	163.03
Laupahoehoe	100	16.50	27.52	23.18	48.16	18.99	13.07	178.38
Ookala	400	12.08	26.32	18.66	50.07	16.98	11.93	165.03
Kukalau	250	9.46	25.81	14.68	54.21	26.39	10.75	.....
Paauhau Mill	300	6.84	22.61	12.91	31.19	17.48	6.85	111.54
Honokaa	470	8.35	24.32	13.57	37.63	16.07	8.32	120.60
Waimea	2720	7.17	9.55	9.31	9.80	3.01	3.04	57.71
Kohala Mission	521	7.49	10.40	8.40	21.86	9.88	6.40	75.88
Holualoa	1450	14.23	8.30	6.34	6.78	2.14	3.47	86.91
Kealahakua	1450	6.16	8.34	6.50	4.62	3.40	4.45	77.75
Naalehu	650	12.61	20.04	5.19	8.56	1.12	2.42	61.86
Pahala	850	17.06	21.72	11.02	9.08	1.19	2.35	76.82
Kilauea Crater	3984	19.02	40.65	12.75	13.82	10.86	4.30	120.93
Olaa, Puna	1530	28.21	47.92	25.82	28.04	23.04	12.69	207.20
Kapoho	110	18.25	14.47	19.11	37.79	4.52	5.69	129.81
MAUI								
Haleakala Ranch ..	2000	12.03	12.24	12.34	17.88	2.88	1.31	75.43
Puuomalei	1400	14.40	16.31	12.57	26.32	8.57	4.54	105.45
Makawao	1700	10.59	9.93	9.61	12.12	4.32	1.75	67.50
Erehwon	4200	6.63	7.83	3.86	2.20	2.73	1.21	38.13
Haiku	700	9.15	13.56	11.24	22.84	7.25	5.01	87.18
Keanae	1000	16.90	33.58	50.16	71.04	19.45	19.20	259.59
Wailuku	250	5.17	8.85	4.90	11.39	0.91	1.82	39.88
Hana	145	10.14	8.56	13.27	27.60	6.26	3.08	95.31
OAHU								
U. S. Weather Bu...	108	5.89	3.14	4.78	6.87	0.40	0.87	33.48
Kinau Street	50	6.28	4.08	5.45	6.70	0.35	0.98	35.16
Woodlawn	300	5.90	.....	.....	.....	13.51	12.30	.....
Nuuanu Elec. Stn...	405	10.48	7.68	18.23	15.67	4.17	5.20	101.50
Nuuanu Water Wks.	881	14.71	14.24	30.06	32.24	17.30	10.60	170.63
Waimanalo	25	8.75	6.50	7.95	18.89	1.78	1.68	67.92
Maunawili	250	14.91	8.20	21.82	25.15	8.97	4.64	116.24
Waialua	30	7.47	4.03	3.02	7.53	0.30	1.17	38.74
Kahuku	25	8.51	5.84	6.14	16.56	1.67	1.17	55.10
Ewa	50	6.94	3.35	4.68	7.63	0.24	0.37	33.68
Lellehua	990	7.73	3.69	5.02	9.88	1.68	0.26	51.43
Wahiawa	675	8.75	4.86	7.65	9.20	0.82	1.84	63.54
Ewa	200	7.87	5.08	6.44	9.64	0.61	1.37	52.02
KAUAI								
Lihue	200	7.88	5.94	13.86	13.18	1.96	1.21	66.90
Kealia	15	6.72	4.61	10.75	8.79	0.78	1.69	49.42
Kilauea	342	6.96	5.11	18.38	11.46	2.15	3.30	79.53
Eleele	150	4.83	3.42	5.57	6.78	0.15	0.41	35.98
Koloa	100	6.05	4.10	12.25	8.80	0.30	0.70	49.53
Waimea	30	5.42	4.29	5.54	5.26	0.10	0.10	34.50

HAWAII'S FIRST TERRITORIAL FAIR.

THANKS to the leading spirit and example of the Hawaii and Maui County Fairs of the past few years, the "powers that be" were at last awakened to the desirability of an annual exhibit to be held in Honolulu, of broader, more comprehensive scope, which would embrace the varied interests of all the islands, thus by cooperative effort make it Territorial in character.

The Fair Commission of Hawaii, appointed by Governor Pinkham, comprised: Geo. H. Angus, chairman; H. P. Agee representing Oahu; Jas. Henderson for Hawaii; H. W. Rice for Maui, and A. H. Case for Kauai. C. R. Willard was chosen secretary. The initiatory work of the Commission in the selection of Committees for its several divisions began February 1st and were made representative of the leading interests throughout the group.

It is to be admitted that legislative aid was sought two years earlier for this very purpose, and with the success beyond the most sanguine expectations which attended this initial effort, we involuntarily sigh for the "what might have been". Yet who can say but what the delay inured to our benefit and contributed largely toward crowning the recent undertaking with success. We like to think that the postponement stimulated the various activities which entered into its make-up, as it certainly did the spirit of appreciation by the general public who thronged its gates.

Kapiolani Park, fortunately settled upon as the exhibition grounds, never served a better purpose and proved ideal. Its ample area afforded liberal space for the various exhibition structures, booths and pens, beside its grandstand and race track conveniences. Other sites that had been considered would have cramped the enterprise, whereas here the committee felt free in their ambitious plan for the double purpose of education and amusement of the masses, as it proved.

The time set for the exhibition, Kamehameha-day week,

June 10th to 16th inclusive, had its advantages, making an appropriate observance of the popular National Hawaiian holiday, and made memorable by the participation of Hawaii's distinguished guest, Hon. Franklin K. Lane, secretary of the Interior, in the opening exercises. Through the hearty coöperation of the federal army officials, with Col. R. McA. Schofield in charge of details of the army equipment, valuable aid was rendered the Commission in its plans, construction, exhibits, provision for and management of the various sports and military manoeuvres which were made a realistic and educational daily feature.

This first fair was a war-time effort, with as little expense as possible, yet its cost, up to the opening, was reported at about \$20,000, toward which the legislature had appropriated but \$6,000 as a revolving fund for annual fairs. Fortunately the large daily attendance, which exceeded expectations, enabled the exhibit to close with a little over \$6,000 above all expenses.

The paid admissions, (placed at the nominal sum of twenty-five cents), for the several days, were: Monday, opening at 1 p. m. 6114, Tuesday 25,525, Wednesday 7032, Thursday 8743, Friday 6494, Saturday 15,186, Sunday 6271, besides which there were many season tickets at \$2.50, and exhibitors' tickets at \$1.50 each, disposed of. The total attendance for the week is given as 92,000, a number far exceeding the population of the city.

There were seventeen main structures sheltering agricultural, educational, mechanical, and commercial exhibits, and the division for live-stock, etc., was as liberal, and justly so, for the display was a surprise, some 370 head being exhibited, among which were many "blue blood" prize winners from the various ranches of the several islands, in competition for new honors, and a splendid showing they made. These comprised 183 head of cattle, 86 horses, 93 hogs, and 8 sheep. There were also 169 dogs, 122 bunnies, 9 cats, together with a good

variety of the feather tribe of some 150 entries, though not in the season of their best plumage.

Appropriate to the war spirit of the times the first division on entering the grounds was devoted to the exhibition and demonstration of things military, not only in the variety of weapons of past and present use, but illustrations of methods practiced therewith were courteously shown.

Most encouraging was the exhibit of the agricultural division, which appealed to a larger body, whether as producers or consumers. Here was demonstrated beyond cavil the possibilities of home-grown products, representing farm, homestead, plantation section and school effort, in illustration of what Hawaii is capable of doing toward self-sustenance. We confess this touched us in a tender spot, being the ANNUAL's advocacy for over forty years. The display of agricultural products, in variety and treatment bore evidence of the valued service and influence of the federal experiment station located here, and its sub-stations on the other islands. Their own exhibits, which included new products as wheat and flour substitutes, in helping to "win the war" was very gratifying. The demonstrations to meet various soil conditions and insect pests awakened many to a realization of what our small farmers have to contend against.

The entomological exhibit of the Bureau of Agriculture and Forestry, and of the Planter's Association experiment station, was of great interest and value. Here the general public had the opportunity to see and familiarize themselves with the many dangerous pests that menace all agricultural effort, and but for the diligent search in all lands by foremost experts in this science through the Planter's Association and the government for the particular parasite for each of these winged, boring, and burrowing enemies, very many of our fields would be laid waste, as could easily be understood by the samples of the destructive work here displayed.

In the plant division, among other things was shown the

progress being made in cultivating cane, pineapple and taro from seed, heretofore propagated only by cuttings and suckers. The exhibit of cane growth from seed at various stages, from the tassel up to well developed plants, recalled the suggestion of such a possibility at the Agricultural Society's fair of 1852, which was unfavorably reported upon the following year. This was revived again some twenty-five years ago by Capt. G. W. Wilfong, an experienced planter, but who at that time was practically alone in his views. For some years past the Planter's experiment stations have been successful in this method of cane growing for the propagation of new varieties, though it is said to require some five months longer time to mature than from cuttings, and not always true to its strain. The samples of most of the varieties of cultivated canes of the islands, indigenous and introduced, with charts of comparative sugar product per acre, spoke volumes for the scientific investigation and culture work of the Planter's experiment station, by which means Hawaii's sugar industry takes front rank.

The plant and flower exhibit was an attractive display that lured a steady throng of delighted visitors. The hibiscus as usual won new laurels, and other cut flowers embodied a variety beyond general expectation, showing the success attending new introductions. Palms and ferns also called forth admiration by their size, variety and grace. Many other rare plants and miniature garden work lent a pleasant charm to this section, which had some 300 entries.

Among the various exhibits of the industrial and merchandise division the leading business houses were very creditably represented, and included Chinese and Japanese attractions and products. Here was witnessed the modern method of broom making, as also samples of willow furniture of island growth and manufacture, two of Honolulu's new industries. Another evidence of progress was the sample products of the Portland cement works of the Maui Agricultural Co., Paia, Maui, which compares favorably with the imported article.

Samples of fine writing paper resembling bond in quality, in white and blue tint, made from cane bagasse, showed the possibility for establishing a new enterprise from waste material, beyond the coarse product Olaa is making for its own use.

The arts and crafts exhibit covered paintings in oil and water colors, photographs, pastels, drawings, etchings, ceramics, statuary and designs, in which all our professionals contributed liberally, and a number of new aspirants participated. The entries here totalled 400.

The food and conservation section gave practical demonstration to householders on the Hooverized question of saving for the war, with an address each day on the various phases of the subject by prominent women of the community. Besides the various articles of American and European cookery, there was also a Chinese, a Japanese and a Hawaiian table with samples of their cooked products and delicacies. Hawaiian canned tuna made a creditable showing for an infant industry.

Rest rooms for weary sight-seers were thoughtfully provided in attractive manner by the Y. W. C. A., and the Army and Navy Y. M. C. A., besides which the refreshment booths gave opportunity for rest and recuperation of overtaxed powers.

Large and attractive was the automobile division, the display of the variety of leading makes, and of types for pleasure, or for more serious service, was an indication of the importance of "the horseless" to present needs in Hawaii.

The aquarium, in addition to its collection of live fishes of brilliant hues, had the walls of the main section hung with plaster casts of other and larger types, from the Bishop Museum, which, with exhibits of the sundry articles essential to present-day fishing methods here displayed, made an interesting division.

Military manoeuvres and sports characterized the afternoon events, and entertainments of each evening, from mob singing,

war movies, etc., to a "Night in Japan", which latter closed the full and varied week's program.

The electric lighting and display was a noted feature of the exhibition, its dazzling brilliancy lending special attractiveness to the exhibit and grounds.

Adjacent to the exhibition grounds, at the southern end, was an outside attraction called the Joy Zone, where varied concessions sought by amusement and prize or gift contests to attract the public and engender the "get-rich-quick spirit". This is no place for a preachment, yet there are those who believe that such side shows are wide of the purpose and spirit of the exhibition in that it detracts from the educational opportunity which taxed the time, talent and energy of the foremost men and women of the land to ensemble.

Notwithstanding the large daily attendance, the crowds were orderly and the officials courteous. But one mishap occurred throughout, unfortunately fatal, a rider being thrown by his horse stumbling. The week passed without an arrest at the park, or the reported loss of anything. The parking system for the many autos too was highly commendable, thanks to the military and policing of the enterprise.

The total receipts of the fair are shown at \$53,514, and its total expenditures at \$47,300, leaving a credit balance of \$6,214.

A COMING CELEBRATION.—Tentative plans are being considered by a Committee of the Hawaiian Evangelical Association, of which W. R. Castle is chairman, for the Centennial celebration, next year, of the landing of the American missionaries in these islands, whose arrival by the brig *Thaddeus*, April 2, 1820, was fraught with so much moment to Hawaii and its people. The committee consists of W. R. Castle, F. D. Lowrey, G. S. Waterhouse, D. H. Hitchcock, Mrs. W. F. Frear, Miss Mary Winne, C. A. Rice (Kauai), G. P. Cooke (Molokai), Dr. W. D. Baldwin (Maui), Mrs. A. S. Baker, Levi Lyman (Hawaii).

OUR FOUNDATION LAYERS.

HONOLULU REMINISCENCES OF THE EARLY 'FIFTIES.

BY THOMAS G. THURM.

EVERY time I have written of early Honolulu events which left their lasting impression upon me, or became part of the city's recorded history, the impulse was felt to pay a tribute of appreciation to those worthies of the early 'fifties (or preceding), who contributed largely in laying the foundation stones of Honolulu's enterprise and Hawaii's prosperity.

Without prejudice to other features of this paper justice demands that the Judiciary have first consideration, for until "law and order" was established, enterprise lagged or was panicky. In the formation of the Constitutional government it was no light task to secure persons qualified for the administration of justice. Judge Andrews, with inexperienced native associates, though they were king, and governor, had a difficult position, and until the Courts commanded respect and held the confidence of the community, brow-beating and other indignities before the tribunals by shipmasters and even foreign officials were not infrequent, as may be gathered from the *Polynesian* in its court proceedings of those days. The accidental arrival here of Wm. L. Lee, and his consent—through Dr. Judd's intercession—to accept the chief justiceship, was a wise and timely act of the administration, and the Constitution of 1852, too liberal for its day, was largely his work. His influence was recognized and beneficial beyond court circles during his life here, for he lent his aid in all organizations for the public weal, as also in establishing one or two business enterprises, and he successfully negotiated Hawaii's first reciprocity treaty with the United States, which the senate failed to approve. His untimely end, through pulmonary trouble, was a grief to all Hawaii, a recognition of the fact that his coming had not been in vain.

SHIPPING ATTRACTIONS.

My earliest acquaintances of Honolulu were with those of its waterfront, since father's work as a shipwright—as at first mentioned—naturally drew attention to the personnel of the firms engaged in that line of enterprise, which at that time were two, viz., Jas. Robinson & Co., and Emmes & Johnson, the former being the pioneer concern in that line whose faithful work had long since established the reputation of the port as second to none in the Pacific for facilities for the repair and refitting of ships. An acknowledgment of this fact, and its influence in making Honolulu the rendezvous of the whaling fleet of this ocean may be found of record in Wyllie's Notes in *The Friend* of 1844, as also in the *Polynesian* of earlier year. With the increasing shipping business of the port following the California gold fever, the new concern was established, to be followed a few years later by two others, the successor to all of whom has become merged into the Inter-Island Steam Navigation Co.

The firm of Robinson & Co. at this time (1853-5) comprised James Robinson, familiarly known as "Jimmy"; Robert Lawrence, better known as "Uncle Bobby", the founders; and Robt. W. Holt, who joined them sometime later. Their shipyard, dating from 1827, was at the point, known as Pakaka, adjoining the then Fort, with front on Queen street, the premises now occupied by the Allen & Robinson lumber business, with its wharfrage. Robinson was an Englishman, as were also Lawrence and Holt. They were all shrewd, conservative men and became not only wealthy as a firm, but held also much property, individually, in town and country, more particularly Robinson and Holt. Mr. Robinson survived his partners a number of years, the first break occurring in 1862 by the death of Mr. Holt, the junior member, followed by that of Mr. Lawrence in 1868.

The Emmes & Johnson shop, as it was called, was near the then north end of Queen street, about the site of the Honolulu

Iron Works Co.'s new warehouse, corner of Smith street. The junior member of the firm, Wm. H. Johnson, was an American, and an out and out Methodist that a few years later, with John Thos. Waterhouse, Thos. Thrum and several others, established the first chapel of that denomination here, which was erected at the corner of Nuuanu and Kukui streets, and later became the birthplace of the introduced St. Andrews' Episcopal church under Bishop Staley. But this is digression.

Mr. Geo. J. Emmes was an Englishman. The shipyard of the concern was the open premises at their front, below Queen street, to the wharf. At least this is where all the heavy spar-making was carried on; vessels built or hauled up for repairs; where the steam-boxes and pitch kettles were located, and where Princess Victoria's schnr. *Kamamalu* was enlarged under the supervision of her guardian John Ii, and at its relaunching bore her name-plates on taffrail and stern in carved instead of painted letters, the work of the wood-carver of Vincent's shop. There must have been a "hoo-doo" on this vessel, for early on re-entering the coasting trade, on a trip to windward, she was never heard of after leaving Lahaina; was supposed to have capsized in the Hawaii channel and sunk with all on board—some 70 souls.

Shortly after the relaunching of this vessel the old shop was torn down and a new structure took its place, a special cargo of lumber from the Sound coming for that purpose. The firm next built the schnr. *Kamehameha IV.* and ran her in the Maui trade for some time before finding a buyer. About this time Mr. Emmes withdrew from the firm and joined forces with a Mr. Dan'l. Burns, who had located at the foot of Mauna Kea street. Mr. Dan'l. Foster became next interested with Mr. Johnson, and they were doing a flourishing business when the "Flour Mill" fire on the opposite corner from them wiped them out of existence. In due time they arose, Phoenix-like, from their ashes, but it was not long before the firm

changed and became Messrs. Dan'l. and Thos. R. Foster, with their shipyard at the eastern end of the Esplanade, Mr. Johnson returning to the States. It was prior to this that the "box system" for the under-water repair of ships came into vogue, a Honolulu invention that in the absence of dry-dock facilities proved of great value to the shipping interests of the port; to the whaling fleet with their stoven bows, and war-ships' damage, notably the Austrian frigate *Donau*, in 1870, and the U.S.S. *Nipsic* from her Samoan hurricane experience, for stern repairs, the success of which brought Messrs. Foster a goodly sum, and in the case of the *Donau*, official thanks.

MERCANTILE ENTERPRISE.

In treating of the efficiency of the port for the attraction of shipping, like credit is due the several mercantile houses of that period whose capital, enterprise and facilities contributed very largely to this ideal, and it is to be borne in mind that this was in the days before banks were known here. The early established firms of C. Brewer; Starkey, Janion & Co.; Makee, Anthon & Co.; the Hudson Bay Co.; Castle & Cooke, and two or three others held the reigns of commerce, say, up to 1850, about which time new firms established to share in the business of the country and the upbuilding of Honolulu, among which were Porter & Ogden, J. C. Spalding, H. Hackfeld, R. Coady, B. F. Snow, A. J. Cartwright, von Holt & Heuck, Melchers & Co., Thos. Spencer, F. Stapenhorst, A. P. Everett, Aldrich & Russ, Swan & Clifford, Hall & Dimond, Gulick & Clark, J. T. Waterhouse, Allen & Co., I. R. Mitchell, and others more particularly devoted to the retail trade.

Of the above, Capt. Jas. Makee, R. Coady, Thos. Spencer, and C. Brewer were, with H. A. Pierce, J. I. Dowsett, Dr. B. F. Hardy and other private parties and ship-masters, the pioneers in Honolulu's whaling enterprise which gained in promoters for several years till in 1859 or '60, when the fleet was at its zenth. Suffering set-backs from this point it grad-

nally reduced in size and numbers and drifted into Arctic trading and then retired.*

Important as was the whaling fleet with its semi-annual visits to these islands for repairs, refitting, refreshments, and shipment of their catches home, vested interests realized its precariousness and sought to encourage agricultural effort as a basis upon which to build for the future. And this movement ante-dated Honolulu's venture in oil.

CHAMBER OF COMMERCE ORGANIZES.

In 1850, the Royal Hawaiian Agricultural Society for the "promotion of Hawaiian Agriculture" formed, and October 15th. following a preliminary meeting on the 1st, the Honolulu Chamber of Commerce organized at the store of Starkey, Janion & Co., at which meeting Messrs. Geo. F. Hubertson, B. F. Snow, Robt. C. Janion, H. N. Crabbe and A. B. Howe were elected a "committee to manage the affairs of the Chamber and to continue in office until January 1, 1852". The signers to the Constitution adopted, in addition to the above officers, were: R. Coady, H. Hackfeld, Jas. Makee, Alai, H. A. Pierce & Co., G. S. Kenway, J. P. Porter, C. P. Samsing & Co., R. H. Bowlin, G. W. Macy, A. W. Parsons, Dugald McTavish, C. S. Bartow and Ayoung. The first act of the Chamber was the adoption of a Tariff of Charges for the guidance of trade, and an invitation extended for "all merchants, traders and planters of the islands to join in aid and influence for its support." Mr. J. Chapman was its secretary.

THE AGRICULTURAL SOCIETY.

Did space permit it would be of interest to present the names of the organizers of the Agricultural Society, so general appeared to be the realization of its importance and desirability of coöperative effort. The prime movers are shown by the preliminary meeting held in the Bethel, April 29, 1850. Judge L. Andrews was chairman, and Chas. R. Bishop, sec-

* The history of Honolulu's share in the Whaling Industry of the Pacific may be found in the *Annual* for 1913.

retary. Judge Lee stated the objects toward formation, viz.: "Uniting the action of those interested in the culture of the soil, and to seek legislative aid for the mutual protection of masters and servants." Messrs. S. Reynolds, W. Newcomb, J. F. B. Marshall, J. Fuller, Rev. S. C. Damon, R. Arinstrong, H. M. Whitney, Ed. Johnson and S. N. Castle spoke in favor of the project, and a committee comprising W. L. Lee, J. F. B. Marshall, R. W. Wood, W. Newcomb, and S. Reynolds were appointed to further the objects set forth by Judge Lee and to fix upon a time for the general meeting. In a discussion on laborers, introduced and domestic, J. T. Gower with a number of the above-mentioned took part. So active and earnest were the committee in the duty assigned it that a convention for organization was held in August, of four day and evening sessions, 12th to 15th inclusive. Organization was completed and constitution adopted on the second day. The officers elected for its first year were: Hon. Wm. L. Lee, president; B. Pitman, Jr., and G. S. Kenway, for Hawaii; L. L. Torbert, Maui; S. G. Dwight, Molokai; G. Rhodes, Kauai; S. Reynolds, Oahu, vice-presidents; S. N. Castle, treasurer; R. H. Bowlin, recording secretary, and R. C. Wyllie, corresponding secretary. The latter declining, E. P. Bond was chosen in his stead. The executive committee for the term comprised: R. W. Wood, J. F. B. Marshall, W. Newcomb, E. O. Hall and G. A. Lathrop.

The president's address on the importance of their organization, as also R. C. Wyllie's on the science of agriculture were valuable inaugural papers. Other practical essays and historic papers comprised:

Reminiscences of Hawaiian Agriculture by Stephen Reynolds.

Benefit of Agricultural Associations by H. M. Whitney.

The Manufacture of Sugar in the Sandwich Islands by Dr. R. W. Wood.

The Culture of the Vine and Tobacco by G. M. Robertson, as also several communications.

Plans of action and discussions thereon, and appointments of the various committees for reports at the annual gathering and exhibit in 1851, wound up a long and busy session, at which time thirteen life and 116 annual members were enrolled, which three years later had increased over 50%.

The introduction of Chinese as laborers into Hawaii is traceable to its influence and coöperation, the first shipment of some 200 arriving here per ship *Thetis*, Capt. Cass, in 1852; it also inaugurated our rice-growing industry of which Dr. S. Porter Ford was the pioneer; promoter of wheat growing which led to the establishment of our first flour mill; encourager of improved stock of all kinds and farming in general; of cane-growing and sugar-making, whereby steam machinery was introduced into the industry, the Lihue plantation of Kauai being the first, and incidentally leading to the inauguration of steam for commercial purposes in Honolulu at the same time by the establishment of Honolulu's Foundry and Machine Shop by D. M. Weston, of which the present Honolulu Iron Works is the successor. Furthermore, it was the prime mover, instead of the Chamber of Commerce, for the treaty of reciprocity with the United States which Judge Lee successfully negotiated.

Unfortunately the Society was short-lived,—less than ten years of annual activity—during which period its summer-time exhibits of agricultural products, horticulture, stock and industry were of more than educational value. Its influence in the improvement of agriculture generally; of floriculture, and the introduction of animals, bees, birds, fruit and flowering trees and plants suitable to our climate was felt long after, thanks to the untiring efforts of Dr. Wm. Hillebrand, the benefits of which we enjoy today. Its fairs were usually held at the Court house and Mauna Kilika adjoining, and was the

event of the year, as is hoped the present movement for County fairs will become.

I like to refer to the reports of this Society for their record of early endeavor in so many lines of island industry, they are an inspiration to coöperative effort for community interests. Some of the special papers were ahead of their time, notably R. C. Wyllie's plan in 1852, for the establishment of a Hawaiian Bank of Loan, Deposit and Discount, with a capital of \$500,000 in shares of \$100. each. Some thought him daft on the subject, as it was one he expressed the islands' need of in 1844 and in 1847. He formulated a workable scheme worthy of better result apparent at the time, yet I doubt not the attentive ears of Chas. R. Bishop and W. A. Aldrich drank in the benefits of the opportunity presented, which five years later bore evidence by the opening of Honolulu's pioneer banking house of Bishop & Co.

CHANGING CONDITIONS

The fact that a number of prominent merchant-members of the Society exchanged their Honolulu interests for that of agriculture, or participated therein, indicated the success of the Society's aims as set forth in the preamble to its Resolutions at organization, viz., "The members of this Society believe Agriculture to be the great basis of Commerce, Manufactures and all other business, and the only sure foundation of Hawaiian prosperity," for it was not long before Capt. Jas. Makee bought the Torbert plantation on Maui, and winding up his Honolulu business moved with his family to, and made Ulupalakua famous with success, socially and financially, for in due time he became interested in the Waihee plantation of Maui, and the Makee Sugar Co. of Kauai. Capt. Thos. Spencer, too, changed from this city for the Hilo business of B. Pitman, which drew him also into sugar. R. C. Wyllie next established the Princeville plantation, on Kauai, at a heavy outlay for the time, but reputed to have been a model, efficient concern. Theo. Metcalf about this same time started

his Kaupakuea plantation, near Hilo, and the Haiku Sugar Co. of Maui, held interests of several Honoluluans. A little later several others started, though the business interests of the islands were passing through a period of depression.

Honolulu was adjusting itself to new conditions and many business changes were taking place. Besides the withdrawals above noted were the failures of Swan & Clifford from high finance methods of the senior partner, and of Allen & Co. through loss in their whaling ventures; the death of Richard Coady, a whole-souled inspirator of effort, which, with two or three disastrous fires, the appearance of the coffee blight, and the declining of the whaling fleet, was having a combined depressing effect. As already stated, new firms were establishing and a number of old business shingles changed, but nobody withdrew, seeking a new Eldorado.

The auctioneers of this period under review evidently all did well, more so perhaps than can be said of the business today. As wielders of the hammer I recall the stately presence of A. P. Everett, M. C. Monsarrat of handsome mien, Henry Sea, all equally tall men, as was also fun-making F. W. Thompson, who died shortly after my arrival. Taking his place came John F. Colburn from Lahaina, followed a few years later by John H. Cole from the same burg.

THE MEDICAL FRATERNITY.

A noble band were the medicos of Honolulu of my early days, not but what there has ever been such, but through the small-pox scourge, as mentioned in a former paper, I was made familiar with a coterie of the profession and their unselfish, tireless work in combatting it, all of which was entered upon gratuitously. Drs. T. C. B. Rooke, W. Newcomb and G. P. Lathrop had charge of our section of the city, towards Nuuanu stream, while Drs. S. Porter Ford, Ed. Hoffman and B. F. Hardy each had other divisions, as also special hospitals (termed pest-houses) for their daily care. Dr. Rooke being a long resident was naturally more familiar with the

conditions and needs of the people, and his experiences during this siege impressed him more than ever of the need of an established hospital for the care and treatment of Hawaiians. Here is where Queen Emma got the idea which, enlisting the support and influence of the king, they entered heartily into the project and solicited funds for the establishment of the institution which is named in her honor.

Dr. Wm. Hillebrand, who came about that time, was an invalid on his arrival, but as he gained in health he gave of his skill and strength, notably to the interests of the Agricultural Society, and the hospital grounds upon its founding. Dr. Hoffman, with his medical skill, was also a talented pianist, whose valued services in entertainments and social functions were taxed on all occasions. Dr. Ford's talent as a surgeon was of a high order and he was noted for his remarkably cool temperament. It was said of him, in proof of this, that at the close of a critical operation he had performed, taking up a needle in each hand and holding them at arm's length, he brought his hands together that the points of the needles met, without a tremor.

MUSICAL HONOLULU.

Honolulu is reputed to be a musical community. This is but the natural outcome of early training and association that may be traced back to the Royal School days, first of Mr. and Mrs. A. S. Cooke, then their successors, to whom may be credited the musical taste which developed in Mrs. Bishop, Liliuokalani, and Mrs. E. K. Pratt, influencing Court circles.

Among my earliest memories of Honolulu linger those of its "song-birds", not a few of whom were under the training of Mr. E. G. Beckwith. In time there were three Beckwith brothers here, teachers, and all of musical ability, who discovered the latent talent in their pupils. There were several families, notably of "the mission" that won recognition by the sweetness of their voices, principal of which, through the 'fifties, were the Cookes, Judds, Armstrongs, Halls, Clarks,

and somewhat later the Holden sisters as also Mrs. J. H. Paty and the von Holt sisters. Much later were other notables of this and the other islands, through Punahou teaching.

The Amateur Musical Society of the early 'fifties, while largely instrumentalists, possessed several remarkably fine vocalists. Mrs. Dr. Ford and Mrs. R. Coady, sopranos, and Mrs. Chas. Brewer, contralto, were a rich-voiced trio. Mr. G. Reiners, a fine baritone, and T. H. Davies, tenor. The services of all the above named were the mainstay of our church choirs, and their talents were freely given in concerts for worthy objects. In 1858 the advent of Messrs. von Haslocher and Waldau, pianist and violinist, both of whom resided here several years, was an uplift in musical circles. One of Honolulu's song-birds took up music as a profession, studying abroad, and became known to the world as Annis Montague, the Hawaiian Nightingale.

The choir of the 2nd Foreign Church was from its start a large and fine one under Mr. E. G. Beckwith's leadership ably assisted by Asa G. Thurston, and this excellence "set the pace," and was maintained through the years of Fort street Church and falls to its successor, the Central Union, as to its high class, though of fewer numbers of late except on special occasions. The Bethel too in the old days held a fine quartette in its choir with Mesdames Ford and Brewer, and J. Fuller of trained bass. The tenor I do not recall. The choirs of the Catholic and Episcopal cathedrals maintained the characteristic features of their denominations in high class music that has contributed its uplifting influence in the community.

While Honolulu has been visited by a number of very noted singers, as also celebrated pianists, violinists, organists, etc., Grand Opera performances have been few and far between.

MOULDERS OF THOUGHT.

Out of the foregoing and intimately connected therewith, arises the memory of those who stood in the front rank of the community for the moulding and guidance of public opinion

and action, and to the credit of Honolulu it must be said, those who were looked to as leaders were all conservative men. I do not recall any hot-headed visionaries "holding the fort" at any time "for keeps". Even the historic "Committee of Thirteen" that disrupted the Judd administration in 1853, swallowed a cabinet pill quite as conservative, and in time its "moving spirits" forgot their ailments and joined the ranks of harmony. R. C. Wyllie, W. L. Lee and John Ii, were the influential trio in this crisis.

In the controversies of the day Mr. Wyllie was ever active, and apart from his official correspondence as Minister of Foreign Affairs, defending us from misinterpreted and ignored treaties, he wielded a ready pen on commercial, financial, or other subjects of public interest. Another staunch exponent of thought on all questions affecting the community was Mr. S. N. Castle, whose able mantle for public service has fallen upon the second and third generation. Rev. S. C. Damon, with *The Friend*, eschewing politics, was ever alert on public moral questions, more particularly perhaps to temperance, education and the welfare of seamen. In proof of this latter was the success attending his appeal and labors for the establishment of the Sailor's Home, as mentioned in my last, a movement which not only provided home comforts for sailors while in port, free of bar-room influences, but awakened the grog-shop sailor boarding houses of that period to a more sane and sanitary provision for their patrons' comforts.

E. O. Hall's editorship of the *Polynesian*, succeeded by C. G. Hopkins, and Abr. Fornander in the opposition paper, *Argus*, kept public questions balanced without undue party feeling, aided by occasional signed and *nom de plume* contributions, from among whom emerged Wm. L. Green of profound thought and energy, author of "The Molten Globe", a deep student of volcanology that would have revelled in the work of Prof. Jaggard and his Volcano Research work of to-day. A few years later than the *Argus*, but with a more pronounced anti-

government attitude, was born the *Pacific Commercial Advertiser* by H. M. Whitney, which at once became the leading journal, and in all its long course to date has wielded a strong influence throughout the islands, though not for the best in the '80s.

Oahu College "seed sowing", in time, produced results of which any institution or country might well be proud, for not a few of her sons became illustrious in all walks of life. Among the broad-minded, executive men of mark in one sphere or another whom we delight to honor stand the names of Armstrong, Alexander, Bingham, Baldwin, Castle, Cooke, Damon, Dimond, Dole, Gulick, Judd, Lyman, Lyons, Lydgate, Thurston, Wilcox and others, and the good work is still going on.

In this brief sketch of subjects that have had a direct influence upon the social and civic welfare of the community, perhaps sufficient has been shown to enable Honoluluans of today to better appreciate the labors of some of the pioneers in laying her foundations, the benefits of which we now enjoy. Compared with the present, that period was a day of small things, but in results they are not to be despised. Other important eras have followed which have, in a measure, obscured but not obliterated the vision of the past. It is well thus to recall our early days, even though some were days of adversity, "lest we forget; lest we forget."

ALOHA HONOLULU.—We came! We saw! We are captivated! We are enrolled in the "Come-Back Club," and it is your genuineness that has put the round trip tag on our ticket. Your hospitality is genuine. Your patriotism is genuine. There's a reality in your war work that we propose shall prove an incentive to your comrades on the mainland. Hawaii is on the map! Hawaii is on the march! Alarmed, alert, aggressive, you, in common with your sister states and territories have set yourselves to make the way of the transgressor so hard that never again shall humanity be pirated and plundered by the war mongers whose God is Moloch, and whose gospel is treason and terror.—W. J. Sherman, in *The Friend*, June, 1918.

DR. WILLIAM HILLEBRAND, M.D.

1821-1886.

BY WILLIS T. POPE.

FEW of the early benefactors of Hawaii are as little known to-day as Dr. William Hillebrand. Information bearing directly on the life of this worthy man is difficult to find, but research shows that he now has countless numbers of living monuments to his memory, for to him is due much of the credit for the introduction of many of the valuable fruit and ornamental trees and other economic plants of the Hawaiian Islands.



DR. WILLIAM HILLEBRAND

The traveler who loves plant-life, when visiting the Hawaiian Islands, is sure to notice first the beautiful flowering trees and abundance of verdure. Many of the citizens of the islands, at the present time, as well as visitors, do not realize that much of the vegetation which now so greatly enhances the beauty of this favored spot, had to be brought from other lands and that a great work of

introduction was necessary which required study and perseverance on the part of those who did it. Dr. Hillebrand was the chief of leaders in this work.

WHAT HE DID FOR HAWAII.

From a few who still survive, we learn that Dr. Hillebrand was for years a favorite family physician of Honolulu; a medical doctor who was selected as the physician of the Royalty of the land and a good citizen who was ever ready to employ his energies in a wise way toward the permanent betterment of his adopted country.

To the interested person who endeavors to investigate the work of Dr. Hillebrand, there appears some striking evidence which indicates that his twenty years in Hawaii were filled with considerable activity and that the results of much of it is everlasting. The many valuable introductions of plants, birds and animals, with which we find his name associated, were greatly aided by the finances of others. Dr. Hillebrand was so qualified that he fit well into the progressive movements of those early days which made it possible to bring to Hawaii a wealth of plant-life and insectivorous birds, as well as many laborers who were so vital in the problem of establishing the great sugar industry of the islands. Here it is well to note that these early immigrants from distant lands have been moulded into an honorable citizenship of their adopted country, which proudly reflects with credit upon those who caused their coming.

IMMIGRATION WORK.

During the reign of Kamehameha V., a Bureau of Immigration was formed. In April of 1865, Dr. Hillebrand, who had been selected as a Commissioner on account of his many qualifications, was sent on a mission to China, India and the Malay Archipelago, to make arrangements for the importation of laborers. On this trip, he was accompanied by his family. In addition to his major mission of securing laborers for the rapidly developing sugar industry of Hawaii, he was to obtain information as to the possibilities of a source of unlimited supply of laborers for such further development as the sugar planters might choose to make. The mission was furthermore opportune to learn what he could concerning the control of leprosy, as this disease had found its way to Honolulu, possibly through Oriental relations. He was also to secure seeds, plants and animals, such as might prove beneficial.

We find again in 1877, through the agency of Dr. Hillebrand, who was then residing on the island of Madeira, that arrangements were made for the immigration of Portuguese

from the islands of Madeira and Azores. It is interesting to note that the pioneer company of 180 Portuguese reached Honolulu September 30th, 1878, and since that date thousands more have come to Hawaii.

AID IN MANY INTRODUCTIONS INTO HAWAII.

During a residence of twenty years in Honolulu, Dr. Hillebrand's knowledge and interest in plant life associated him very closely with the plant introductions made during the period from 1851 to 1871. He gradually formed about his home an extensive garden, thickly set with a great variety of shrubs and trees collected from all parts of the world. These grounds on Nuuanu avenue still abound with rare and beautiful specimens. The fine assemblage of rare trees, now so familiar in the Queen's Hospital grounds, in the surroundings of the Lunalilo Home for aged Hawaiians, in the old nursery grounds on King street and in collections in many private grounds throughout the islands are evidences of those days when Dr. Hillebrand was associated with the Royal Agricultural Society and a most enthusiastic officer and member who worked for the future development of Hawaii.

As corresponding secretary, he made it his duty to arrange for seed and plant importations. A good authority informed the writer that such trees as the Royal Palm, Monkeypod and many others reached the islands as seeds through his early efforts. When traveling in foreign lands, he was authorized to secure seeds and plants of such economic importance as would prove of value. Previous to his journeying to China, the Malay Peninsula and India, as a Commissioner of the Bureau of Immigration, in 1865 an appropriation of \$500.00 was made for him to expend for seeds, plants and animals, as, in his judgment, would prove beneficial to the Hawaiian Islands. This appropriation was made jointly, by the Planters Association and the Royal Hawaiian Agricultural Society.

The *Hawaiian Gazette* of July 28th, 1866, gives a report of the Royal Hawaiian Agricultural Society which states that

Dr. Hillebrand had procured and forwarded a shipment of a number of Wardian cases from the following points: Ten from Singapore, nine from Calcutta, one from Ceylon, eight from Java and two from China. These contained seeds, plants and birds of various kinds. From other records of those days, it is indicated that those shipments brought to Hawaii the following trees, either as seeds or plants: the Camphor, Cinnamon, Mandarin orange, Chinese plum, Jack fruit, Java plum, Litchi, several species of *Eugenias* and *Banyans* and a considerable number of other ornamental shade trees and beautiful flowering trees. With the above mentioned consignment was a collection of birds among which were the Carron crows of Calcutta, two kinds of Goldfinches, Indian sparrows, Japanese finches, Chinese quails, Silver pheasants, Mongolian and Golden pheasants, Linnets, Rice-birds and the Mynah birds. There was also a pair of deer each from China and Java. A more thorough search of the records of those times would no doubt give us a much longer list of the early importations.

COLLECTION, STUDY AND PUBLICATION.

During a period of about thirty-five years, from 1851 to his death, Dr. Hillebrand almost regularly devoted a part of his time to the making of plant collections which he carefully classified and preserved. This study of the Hawaiian flora made it necessary for him to visit all of the larger islands of the group, penetrating even the innermost recesses of their deepest canyons and climbing the lofty mountain sides to all elevations within the range of plant life. His interest in general science took him to the summits of the highest mountains and to various volcanic activities. Such extensive botanizing required the making of many excursions; these were often made with some well-informed native guide, sometimes other well-known scientists, as Mr. John Lydgate and Dr. Horace Mann accompanied him. His eldest son, Mr. W. F. Hillebrand, was his most constant helper in the making of these plant collections. This rather extensive herbarium of Ha-

waiian plants was finally contributed to the Royal Museum of Berlin, where it is a part of a great collection maintained for study. After leaving Hawaii, Dr. Hillebrand also made plant collections in the islands of Madeira and Azores. In Hawaii, Dr. Hillebrand found himself among the greatest number of indigenous species known to any comparatively small locality at the time of discovery by white men, and had the distinction of being the first to authentically name and describe some 250 species, which were previously unknown in botany. His co-workers who had a share in the naming of these newly discovered Hawaiian plants, named a genus and a number of species in Dr. Hillebrand's memory.

The name of "Hillebrand Glen" was given to a beautiful little wooded canyon on the Ewa side of Nuuanu Valley. This name was given to the place long after he had left the Hawaiian islands, presumably due to his having discovered a very choice fern therein.

During the last few years of his life, he worked very hard to complete the publication of the "Flora of the Hawaiian Islands" but his death preceded the finishing of the final proofs. The management of the completion of the work was carried on by his son, who had assisted his father so long and faithfully as a student and collector. The publication was completed in 1887 and for a long period of years was practically the only technical work treating of Hawaiian plants that was generally used. The book has a particular value in that it gives much of the Hawaiian's knowledge of plants as well as the Hawaiian names. The plants of known introduction previous to the time of publication, received mention. The "Flora of the Hawaiian Islands" is still indispensable in a detail study of plant life of the islands.

Dr. William Hillebrand was born in the town of Nieheim of Westphalia in Germany, on November 13th, 1821. He was one of six children of the family of Judge Franz Josef Hillebrand, the mother being Louise Pauline (Konig) Hillebrand.

Of the six children four were boys and two girls. The latter were named Pauline and Wilhelmina, both of whom died rather young. Little trace is given of the four boys, other than they were named Henry, Franz, Herman and William. There is reference to Herman having lived in Honolulu during a part of the time that Dr. Hillebrand was there. Herman was known as a prosperous dairyman in the vicinity of Honolulu until his death. He was a brother-in-law of the well known Rev. Sereno E. Bishop.

Little is known of Dr. Hillebrand's boyhood. His early education was gotten in the schools of his birthplace. He afterwards studied rather extensively in Gottingen, Heidelberg, and Berlin. In the latter city, he studied medicine, receiving the degree of M.D. His education was thorough, as is indicated by the rating he had as a physician, and by the importance of the public service he rendered during his lifetime. He was considered a careful scientific thinker and a fluent linguist, having mastered the German, English, Latin, French and Hawaiian languages. Dr. Hillebrand was a good conversationalist but seems to have had no particular reputation as a lecturer. Several descriptive articles in reference to volcanic activities on the island of Hawaii indicates his ability to write fully of his scientific investigations.

After completing his education in Germany, Dr. Hillebrand practised medicine in the city of Heidelberg but in a very few years was forced to discontinue on account of ill-health. He traveled to Australia and the Philippine Islands, recovering somewhat. In Manila, he took up the work of his profession but declining health again obliged him to wander. An extended sea voyage brought him to San Francisco somewhat improved. The conditions offered by the Pacific Ocean seemed best suited for the restoration of his health, so, acting on advice, he sought the Hawaiian islands, arriving in Honolulu in 1851. Here, the mild climate soon restored his health and he became a citizen of the island kingdom, where in the next

twenty years he did so much good and lasting work. In Hawaii, Dr. Hillebrand took up the practise of medicine. Aside from becoming a favorite family physician he was physician for the Queen's Hospital most of the time from its establishment until he departed from the islands in 1871. He was for a time physician at the Insane Asylum and was the private physician of Kamehameha V. At one time he was an active member of the Board of Health and for years a partner of Mr. J. Mott-Smith, in the drug business, their store being located on one of the corners at the intersection of Hotel and Fort streets, Honolulu.

Dr. Hillebrand was long associated with the Royal Agricultural Society of Hawaii and for several years was its corresponding secretary. During the reign of Kamehameha V., he was a member of the Privy Council.

Dr. Hillebrand, at middle-age, is described as a quiet, sober, practical man of medium height and weight, complexion fair, eyes gray and as possessing an abundance of rather dark hair. He was fond of his family and took particular interest in the education of his children, two sons, William Francis and Henry Thomas. He was very fond of flowers but seemed to have no particular favorites. It is believed that his favorite fruit was the Malaysian Mangosteen, as he had made considerable effort to encourage its growth in Hawaii. The Doctor was very fond of music and enjoyed playing on the piano, but his favorite recreation was that of working among his horticultural specimens in his home garden.

Dr. Hillebrand was married during the second year of his residence in Honolulu, on November 16th, 1852, to Miss Anna Post, a step-daughter of Dr. Wesley Newcomb, a prominent physician of Honolulu during the 'fifties and who as a conchologist showed much interest in the collection and study of Hawaiian shells. Having a desire to travel and do further botanical study and work in the preparation of his publication the "Flora of the Hawaiian Islands", he sailed from

Honolulu on June 27th, 1871, for San Francisco en route to Europe. During the next fifteen years, he resided in different parts of Germany and Switzerland and for some years was in Madeira and Teneriffe, where he also made extensive plant collections. For over two years, previous to his death, he was seriously ill, which greatly interfered with the completion of his work upon the Flora. He died suddenly after an operation in Heidelberg on the 13th of July, 1886. His remains lie in the burial place overlooking the fertile valley of the Rhine on the outskirts of the beautiful town of Heidelberg, so endeared to him by the recollections of his student days and the associations of several years of residence during the latter years of his life.

SCIENTIFIC TREASURE TROVE.

BY J. M. LYDGATE.

IN MY boyhood days at Punahou I developed an interest in Botany and made the acquaintance of Dr. Wm. Hillebrand, a resident physician of Honolulu, who was making a careful study of the flora of these islands, and in that connection was making a large collection of Hawaiian plants.

An active, observing boy, this Dr. Hillebrand took quite a fancy to me, because of my interest in his favorite avocation, and took me with him on a collecting tour over the islands of Molokai, Maui, and Lanai, which occupied the whole of the Summer. That was in 1869, I think; and for years thereafter I continued to collect for him as opportunity offered; and often I spent memorable happy days with him at his simple home in the midst of the wonderful garden which he had created filled with strange and beautiful plants and trees that he had gathered from all parts of the world. This garden afterwards passed into the possession of Thos. Foster and is now known as the Foster Place,—up Nnuanu.

Not long after, Dr. Hillebrand left the islands and went

to Europe to prepare his monumental work on the Hawaiian Flora. And for some years, up to the time of his death, I continued to send him collections of such interesting plants as I found in my wanderings. By this means I was able to add very materially to the completeness of his collection, and very many new and interesting finds reached him from my hands.

In return for these services, which he valued very highly, and as an evidence of his interest and regard, he finally made up a type collection for me and sent it out to me from Germany.

This was somewhere along in the 'eighties, perhaps 1886 or 1887. I was then deeply immersed in plantation problems and interests as the manager of the Laupahoehoe Sugar Co. and the collection of plants made comparatively little impression on me.

Some time after this I left the islands to complete my education and remained away for some years, and never again returned to Laupahoehoe, except for an occasional visit. Finally the old homestead was abandoned by the departure of my mother to Honolulu. Accordingly the old home has been unoccupied for the last fifteen or sixteen years. And during all this time the collection of plants was forgotten,—or if remembered at all, it was only to take it for granted that it had been destroyed by insects. In fact for years I have had the settled conviction that I opened the case and found only the riddled, mildewed remains of what had been.

This last Summer when on Hawaii my mother suggested that we make a visit to the old place and see what was left of it, and whether it had much value.

A faithful Japanese family who had been with us for many years, rented part of the property to plant cane on, and into their hands the old home was given over by my mother on her departure, with detailed instructions about the various things that were left. The old lady arrived with the keys, opened the rusty locks with some difficulty, and took us through

the old house where so many happy days had been spent and so many interesting experiences enjoyed.

The house was over forty years old, and the climatic conditions of the Hilo District are very trying to a frame house like that; but we were very much surprised to find that it was in an excellent state of preservation. The foundations, the walls, the floors and the roof were intact and sound; there were no signs of leaks anywhere; even the windows were in fairly good shape. The only apparent ravages that Time had wrought were in the steps and the exposed sections of the verandas. The paint even was still intact,—even on the outside,—while within it looked as fresh as though it had been applied only a few months ago. Apparently much better material was put into buildings then than now. All this by the way.

In one of the upstairs rooms, the old lady who was acting as guide, pointed to a box on the floor and said that Mama told her to look out for that box; it was “Nui nui waiwai; books paha?” (Very valuable, perhaps books.)

I tilted the box gently with my foot and knew instantly that it wasn't books, it was too light. At the same time the well-made box suggested an Old Country origin;—then like a flash it came to me, “This is my Hillebrand collection of plants.” And none but a scientist, with a hobby that is a weakness, will know the joy that flared up in me at the discovery. It was a matter of a few moments to get hold of a hammer and open the box, and sure enough, there were the reams and reams of dried plants, every one of them an old friend and bringing back thrilling memories of bygone experiences by mountain peak and valley glen; the high light touches of a lifetime; all carefully labelled with name and location, and laid away between files of old newspapers. It was no place, then and there, to make a thorough examination. I nailed the box up, had it carried over to the railway station

not far away, and there forwarded to the Bishop Museum, with which I was on friendly terms of relationship.

Now, in a collection of plants such as this there are two elements of value. One is the intrinsic value of the plants as a collection. It would take months of effort to reproduce such a collection;—nay, years perhaps; in fact some of the plants are extinct and could not be duplicated at any price. The other element of value is the nomenclature. Hillebrand, as the result of years of study and special advantages in the way of comparison with standard collections abroad, had determined the names and formulated the descriptions that were authoritative. These names and descriptions were published, to be sure, and were available for all. But imagine having to pick out your child from a catalogue by a description; one glance at the child would be more conclusive than reams of description! This collection, being Hillebrand's own findings, was accordingly absolutely authoritative, and consequently exceedingly valuable for purposes of comparison. I felt sure that it would be appreciated, all the more for the reason that there was no other such collection in the country.

Accordingly, on arrival in Honolulu, I went immediately to the Bishop Museum and apprised Mr. C. N. Forbes, the Botanical Curator, of the find that I had made and that I felt that it ought to go to the Bishop Museum; and accordingly I would like to dispose of it to them if they cared to take it. "Of course," I said, "I can't say for sure what condition the collection is in; but you look it over, and see what it is like and then let me know, and what you think it is worth."

A few days later I received a letter from him telling me that the collection was in perfect condition, that it contained 566 specimens almost all in perfect shape, and that they would propose a price of \$500 for the collection.

I could have fallen through the floor! I had been wondering if I would have the assurance to ask \$100 for it; but that was once when I had sense enough to hold my tongue.

Later the Trustees took action on the matter, and without question or delay voted the expenditure, and in due time the check reached me.

And so I call it a scientific treasure trove; as much of a treasure find as though I had stumbled onto it in a cave, or a hole in the ground.

HANA OF HISTORIC TRADITION AND ROMANCE.

THE south-eastern division of the island of Maui, comprising the districts of Hana, Kipahulu, Kaupo and Kahikinui, must have been at one time a central point of kingly and priestly power, and held strong attractions which drew from across the Hawaii channel so many attempts of envious aliis to invade its shores, subdue its people and possess their lands. In this and other respects it is a section especially rich in historic traditions, in not a few of which are interwoven legendary tales of romance. Here too centers some of the characteristic popular myths of the Hawaiian race which hark back to their primitive days.

A recent tour through this region threw much new light on such subjects, known hitherto, as might be said, theoretically, hence the added value to the lore of the districts by a practical knowledge of the points of interest, which are to be found on shore, valley, stream, hill and mountain peak, for each hath its tale whereby deeds of valor and chivalrous romance are kept green in the memories of the people.

This section was prominent in the reign of Kekaulike, and holds the ruins of Maui's largest heiaus. These temples, erected with aid of his priests in the Kipahulu and Kaupo districts, in furtherance of his war designs on Hawaii, attest his ambition and power. Kamehameha-nui also held his court here, but with less war-like propensities, so that he was completely surprised by an attack from across the channel when Kalani-

opuu came into power, and died while the best part of Hana was in possession of the invaders, of which more anon.

Entering the picturesque little harbor of Hana, Maui's easternmost point, one is at once in a sphere rich in traditional lore, some of which trends on comparatively modern times.

The hill of Kauiki, on the left-hand side in entering the harbor, was Hana's stronghold, and the bulwark of Maui's defence for generations. It was the storm-center in all attempted invasions of the district, whether by land from rival Maui chiefs, or by sea from Hawaii's ambitious aliis. It is said a great image stood at the base of the hill to help defend its sole ladder means of ascent, which overawed all would-be assailants, mistaking it for a giant guard, believed to be the tutelar genius of the fort. In Umi's raid two of his noted warriors returned from their attempt with "cold feet", but the third, more venturesome, discovered the deception, overthrew the image, routed the guard and captured the fortress. The hill was also captured by Kalaniopuu's forces at a much later period, and in the several battles that took place during his control it is not unlikely that Kamehameha shared in its experiences, for it was off this coast, to acquaint himself with the strange sight, he and a few companions boarded Cook's ships and stayed over night, to the great alarm of those ashore, lest they see him no more.

On Kalaniopuu becoming sole Moi of Hawaii, he suddenly concentrated his forces and canoes at Kohala and without notice invaded Maui, where Kamehameha-nui then ruled, making a descent in the Hana district, and in a short time possessed the two valuable districts of Hana and Kipahulu, and the fort on Kauiki hill. Kamehameha-nui, recovering surprise, with allied forces laid siege to the fort, but it resisted all his attempts and was in Hawaii's possession for several years.

Kalaniopuu still held portions of the Hana district and the Kauiki fort in 1775, when, in the war between Hawaii and Maui, he commanded in person a raid in the Kaupo district,

then under Kahakili's rule, in which great cruelty and suffering was inflicted upon the people till Kahakili came from Wailuku into the district, and at a battle near Kalaeokailio routed the invaders and pursued them to their fleet lying under the lee of said point, that barely a remnant escaped to Hana.

Hawaii's king thereupon withdrew to his own island and for a year prepared for a retaliatory war on Maui, organizing six brigades, with aliis forming a life-guard called Keawe, and nobles comprising two regiments known as Alapa and Piipii. In 1776 these forces landed in the Honuaula district from Keonionio to Makena, thence on to the isthmus between Kalepolepo and Maalaea, and engaged Kahakili's warriors in that celebrated battle on Waikapu commons when the flower of Kalaniopuu's army, including his Alapas, were annihilated, save two left to tell the tale of slaughter.

Following up his success, Kahakili invaded the Hana district, which had been Hawaii's since 1759, and reduced the fort on Kauiki hill and re-annexed the district. The fort held out strongly until its supply of water was cut off by damming and diverting the springs in the vicinity, when it capitulated.

At the base of Kauiki, at the side lapped by the gentle waves of Pueokahi, is pointed out as the birthplace of Kaahumanu, who became the favorite wife of Kamehameha the conqueror, and upon her conversion to Christianity was a power throughout the group for the uplift of her people. Hana also furnished Hawaii with an earlier queen, whose betrothal to King Umi was done by proxy, but the gorgeousness of Princess Piikea's outfit and accompanying canoe-fleet that conveyed her from Hana across to Waipio to her leige lord, to cement the friendship of the two islands, is of traditionary record.

Until within the past few years the ruins of one of Maui's famous heiaus graced the base of Kauiki hill, facing the village, a temple known as Honuaula, that marked history, erected by King Hua-a, who, stopping here en route from Lahaina in a raid upon Hilo, sought thereby to propitiate the gods to

aid his venture. The expedition proving successful he returned to Hana and built another but smaller one, known as Kuawahu, in the same vicinity, by way of celebrating his victories.

The district knew another King Hua at a much earlier period, who was of a far different type, being cruel and selfish in the extreme, whose evil deeds were so flagrant that nature revolted; the heavens refused its rain; a brazen sky parched the land and dried up the streams whereby famine stalked the land. Priests were put to death who ventured a protest at his acts. Retribution followed, says tradition, for, as a result, he and his people perished miserably. He died with no one to bury him, a great disgrace in ancient times, so that the saying: "Rattling are the bones of Hua in the sun", became a well understood proverb.

Kauiki's elevation is barely 400 feet, yet its hallowed estimation in the minds of the early inhabitants of the district gave it a mythical height, which has come down through the ages. So long ago we know not, the bards sang of it thus:

"Engulfed is lofty Kauiki,
Where Hanaiakamalama dwelt."

"Shooting up to heaven is Kauiki,
Below is the cluster of islands,
In the sea they are gathered up,
O Kauiki!
O Kauiki, mountain bending over."

The hallowed estimate alluded to may be admitted as the most reasonable basis for the ancient saying, that, "At the hill of Kauiki the heaven is nearer the earth than elsewhere, in fact so close that it could be reached by a good strong cast of the spear." "*Lani haahaa*", low-lying heaven, is its sobriquet to this day.

This impression of nearness has confirmation in the mythical story of Hanaiakamalama who leaped to the moon from its summit. She is said to have been provoked with her children, Puna and Hema, and to have gone up to the moon to live, but in ascending, her husband caught her by the leg and tore it off,

on account of which she was called "Lonomuku"—maimed or crippled Lono—as is seen to this day.

Hana is also famed as possessing, at times, strong surfing attraction, the indulgence of which sport developed such skill in its devotees as to invite the challenge of other locality experts. Several such contests are woven into some of the most popular of Hawaiian legends.

In the story of Laieikawai it is said that Aiwohikupua, on his way from Kauai to Hawaii touched at Hana during a surf-riding contest in which the chiefess of the district was the center of attraction, and was his excuse for considerable delay that he might participate in the sport with so charming and prominent a competitor which resulted in an entanglement that hampered him ever after for his perfidy.

Kiha-a-Piilani, visiting Hana incognito, was another who lost his heart to a charming contestant in surf-riding indulgences of some four days duration off Pueokahi, when Kolea-moku, daughter of the high chief Hoolae, at the close of the contest betrothed herself to the Waikiki expert, and in taking him "for better or worse" without seeking paternal consent she was disowned and disinherited. But when Kiha's incognito period wore away and the designing parent and daughter learned that—all unsuspecting—she had chosen the very one she had been pledged to, the chief relented, it is said, and all was forgiven if not forgotten.

From the realm of fancy to the stern realities of today, in and around Hana, new subjects of interest are opened up. One sees a scattered village amid a broad acreage of waving sugarcane—its sole industry. The plantation (now a corporation) ante-dates all others on Mani, absorbing two attempted rivals during its existence. The wooded hills back of the town catch the rain clouds that drift in with the trade-wind, giving the foliage and agriculture of the district a freshness and its streams limpid vitality. It enjoys also an invigorating air with its fresh breeze from off the sea.

Horseback riders are richly rewarded by the delightful scenery met with in an overland trip to Hana, whether by way of Nahiku and the Koolau road, for the forest and well-watered valley vistas which open up to view continually along the way, or, by way of the great crater of Haleakala and down through the Kaupo Gap, for the thrills of grandeur of scene above cloud-land, and immensity of the crater's area.

Though enjoying regular semi-weekly steamer service with Honolulu, Kahului and Lahaina, and occasionally other (including foreign) ports, yet a feeling of isolation possesses one in this section unless well employed. While Hana and the adjoining Kipahulu district permit of roads serviceable for autos, the gulches of Kaupo and Kahikinui districts beyond afford but horse-trails, though with some beautiful scenery on the way, particularly Wailua, until reaching the dreary stretch of road through Nu'u. The windward or Koolau road to Nahiku holds more attractions. Good roads are essential to the progress and development of any district, and hotels also for the encouragement and convenience of travelers.

OLONA, ITS CULTIVATION AND USES.

TRANSLATED FROM S. M. KAMAKAU IN THE *Au Okoa*.

THE olona or native hemp, [*Touchardia latifolia*, a shrub 4 to 8 feet high], was a material so generally required by the entire native population that it came to be of great value, and its cultivation was prosecuted on a large scale by farmers in sections suitable to its growth. Its bark furnished a fiber for twine unequalled for tenacity and durability for outfitting the many catchers of fish, because from it were manufactured not only long fish lines and nets, cord for canoe lashings and house framing, but durable ropes and other such needs of the people.

There were but few regions favorable for the growth of olona, therefore the farming people were not all engaged in its

cultivation. The olona grew luxuriantly in deep ravines on all islands, but was by no means common, as also in localities favored with heavy rain-fall, or in marshy lands. It did not flourish in arid regions, but on mountain sections covered with thick groves of banana plants, or where water dripped from the sides of cliffs, or other well-watered sections, as mentioned, there the plantings thrived best. They were particularly adapted to windward lands, there being but few favorable localities elsewhere. The would-be olona grower would first find a suitable tract of land for its propagation, and having selected a favorable spot would then destroy all shrubbery, cut down the trees and eradicate all weeds. The method of planting olona was by slips, similar to that of the wauke or paper-mulberry. Some grew erect, others branched a great deal, but these were low, increasing in number as the shrub grew. If one or two acres were covered with olona and thriving beautifully, its product was divided and known by several names, such as the chief's, the landlord's, and the cultivator's olona, according to the custom in those days.

After the olona had been planted out was the time when the cultivator should be very vigilant. During that period was the best time to destroy the weeds and other shrubs, for when the olona grew to be a fore-arm length in height, men could not enter the field, for then the plants will have formed an impenetrable thicket. Consequently the proper course for the planter was to be watchful and uproot the convolvulus and other vines lest they creep onto the olona shrubs and kill them. When the field matures it gives unbounded joy to the planter, being of uniform height, their stalks straight and leaves of even shade; and if it happened to be a level tract of two, three or more acres, they would afford a very pleasant sight, being close together, and the leaves beautiful and round.

The olona requires a year or more before it comes to maturity, at which time the leaves turn to a pale yellow. While they are of a dark green color the bark will not separate freely

from the stalk, for it has not yet become sufficiently woody. When it is time to gather the crop the cultivator erects long sheds for the housing of the product, and when these have been completed the olona scrapers, men, women and children, immediately set out in great number for the uplands to a location near some water-course, such a locality being the only suitable place for the preparation of the fiber. Olona was the means of securing food; the basis of fishing; the source of wealth, and hence the cure of poverty. When the tillers of the soil, the hog raisers, the dog feeders, and the kahala fishermen heard that the halaus, or shed-like structures, had been erected, and the bark of the olona shrubs were about to be stripped and scraped, it was then that one would hear the noise of the squealing pig, the howling dog, the crowing cock and other rumbling sounds, and witness the bundles of fish and other comestibles being gathered during the hemp's preparation for the grand luau. If it was a land of the first class the landlords furnished the pig, food and fish for the feast, such being the accompaniments of the olona's preparation in the olden time.

TREATMENT OF THE OLONA BARK.

The olona shrubs were first cut down until a pile had been gathered, then the bark would be opened up and the woody portion, the core (*auhau*), removed, which, with the leaves of the plant, were not allowed to remain on the field, but were cast away lest the growing ones be injured. On freeing the bark it was next taken and laid in water, but it must not be allowed to remain in soak too long, lest the bark become too soft and render the fiber brittle and thus become defective. After standing in water for a day, or maybe two days, the scraping should then be begun. The method of preparation of olona fiber was as follows: A narrow board a fathom and a half in length, about five inches in width, and a half inch or so in thickness is prepared, shaped tapering at one end so that it may be fastened to a stake driven in the ground to keep it firm, the upper end of the board resting on a block of wood

to give it some slant, to free the work from undue moisture.

The instrument with which to scrape the olona bark, called the *uhi*, is made from the back-bone of the turtle or its shell, the sides of one end being beveled to the sharpness of an adz, after which it is rubbed down with a piece of hard coral. In this way the uhi or scraper was sharpened. It was shaped and tested so as to fit closely to the board on which the olona was to be prepared, so that the fiber would not be rendered short and stumpy, provided, however, that the board also is smooth. Next, place the bark lengthwise on the board and with the scraper in the right hand, hold down the end of the bark upon the board. Then move the scraper forward and flatten the bark in front of it, continuing along in this manner until the whole bark has been scraped. The upper end of the bark being held down with the left hand, with the right hand cut off the other or lower end with the scraper, throwing that part away. After this, scrape the end off, whence the bark fits closely to the board. Return to the upper end and remove the particles of the bark that still remain, called lepo olona (olona dirt), after which, turn the fiber over on the other side and scrape off all particles, then turn it back again, scrape and shake it. When the dust has been shaken off on that side, which is now white, proceed in like manner with the other side until it is finished. Thus should all the others be treated, and when forty strips of olona bark, the number for an apana (bundle) have been finished, tie them up together. In like manner proceed with the rest of the bark.

The man, as also the woman, who is expert in this special line of work can finish from one to two *lau* (400 to 800 strips) in a single day. The preparation of the hemp requires skill, for the one who is not schooled in this vocation can not hope to make much progress therein.

In ancient times Maui and Molokai were the islands most noted for planting and preparing the olona for the making of twine for nets and cord, which accounted for the wealth of

those places. On entering the sheds wherein olona was prepared, the strips of fiber would be seen hanging down like so many water-falls along precipices, or streams falling from the roofs of the sheds like wavy hair in their rippling appearance.

TWINE AND NET-MAKING.

The making of the net was a very important task of the ancient Hawaiians, for such calling was held in highest esteem. Maiai was the originator of net-making, wherefore the men who followed this special vocation were guarded by the most stringent rules governing them, and all persons not engaged in the occupation were prohibited from approaching the workers, lest they should be pierced through with the shuttles, since the eyes of the workers were intent upon the mesh of the net.

Net-makers would first see to obtaining a sufficient supply of the olona fiber for their contemplated work. For this they would take as a medium of barter a number of hogs of good size to the shed where the olona was prepared, and he would then receive many hundreds of olona bundles, and if he desired more, he must give in exchange such other valuables as dogs, small fish ponds, patches of taro, or of other vegetables. If it was olona fiber of the first class, only the chiefs, or lords of the ahupuaas or districts, had the power to procure such for manufacture into twine; that of the commoners being secured only through much labor, and therefore obtained only in accordance with diligent personal effort.

The women were the ones who twisted the fiber into twine and cord for nets, and their services were requited with pigs, fish, vegetables, skirts, or such other articles as might be desired by them. The very large nets called naepuni, also those known as nae, puni, and aa, were made of very fine cords, sufficient for which required a year or more perhaps for its twisting and completion. The naepuni was of very fine and delicate texture, and the spacer therefore was a suitable small piece of wood, the hi'a or shuttle being of small size also.

Cords for the net of the nukunnaula and makahi were a little heavier than those of the nae, the meshes of which also required the use of spacer. The cord for the malua net was still larger, with a mesh of two fingers' width; that for the makolu, of three fingers' width, was larger still and stronger. Thus the cord increased in size, as in the case of the mahae, the malewa, and the hihi, and the cords of these were much like that used in making the calabash-nets, and for long fish lines.

In making the mahae and the malewa nets, they did not require the use of the shuttle since only the ball of cord was necessary, but those who did not know how to space with it might, however, wind the cord around the shuttle. A piece of wood was the best spacer, one which had been so made as would best fit the case, for that was the contrivance which kept the meshes of the net uniform, as it entered this and that mesh through which the shuttle was thrown with the cord. The spacer of the net was called the haha (feeler). As a rule net-makers were skillful, swift and painstaking.

NEW HAWAIIANA

"Our Hawaii," by Charmian Kittredge London, published by Macmillan & Co. the latter part of 1917, is a delightfully written book of some 350 pages descriptive of life in Hawaii as experienced by the Londons in their several visits. The work is freely illustrated from grouped photos, and is remarkably correct in Hawaiian names, local expressions, and historic narrations for a visitor, evincing a care in its preparation which entitles the author to the reader's confidence. A charm that impresses one throughout its pages is the spirit of appreciation of the land, its climate and people under all circumstances, so like Isabella Bird.

"The Pilgrims of Hawaii," by Rev. and Mrs. Oramel Hinkley Gulick, published by Fleming H. Revell Co., is "the story of the transformation of a nation," being a narra-

tive history of the American mission to, and in these islands, verified by missionary journals and letters from 1820 to 1859. The result of these labors, in which the writers have shared all through their long life—and are still engaged—(though modestly rarely mentioned), covering the religious and educational work as also the political, agricultural and commercial progress of Hawaii, are summarized and brought down to date. The book furthermore is well illustrated.

Part III, completing the first volume of the “Fornander Collection of Hawaiian Antiquities and Folk-lore,” which form Vol. IV of the Bishop Museum Series, also issued at the opening of 1918, with a copious index of 52 pages of the volume’s contents, a convenient reference to this long hidden mine of Hawaiian legends and traditions of over 600 quarto pages.

This was followed by No. 1 of Vol. VII in the series of Bishop Museum Memoirs, being the second supplement to “Hawaiian Feather Work,” by Director Wm. T. Brigham, Sc. D. In this issue Dr. Brigham has evidently given us the last word on the subject, which embraces not only the cloaks, capes, helmets, wreaths, malos, kahilis, hats and idols in the museum and in private hands in these islands, but in the various museums of the world as also in private hands abroad, with an historic account of each. The revised list shows 117 cloaks and capes of the world, 52 helmets, and 12 Kukailimoku idols.

The treatise is freely illustrated from photographs of the originals, and its interest and value is enhanced by four full page plates of famous cloaks in the colors of the originals.

Part I of the second volume of “Fornander’s Folk-lore”, of 225 quarto pages, in the uniform style of the Bishop Museum Memoirs, comprising fifteen legends of the islands, issues as we go to press.

“The Hawaiian Romance of Laieikawai,” with introduction and translation by Martha Warren Beckwith, a large 8-vo. of

some 380 pages, appeared during summer from the Bureau of American Ethnology, Washington. In this work Miss Beckwith places all students of Hawaiian folk-lore under deep obligations for her painstaking service in bringing out the first complete translation of what has been termed the finest romance of the race. That the labor thereon has been one largely of love is evident by the many references and notations, as also the comparative study for the introduction, which presents not only the features of the story, its writer and his characters, but treats of the art and style of Hawaiian composition, with copious extracts illustrative of the characteristic features, which shows a rare familiarity with the lore of her land, a benefit from exceptional reference opportunities.

In "Personal Reminiscences of a Well-Known Early Kauai-Honolulu Family," Malcolm Brown has written his recollections of the advent of his parents, Mr. and Mrs. Thomas Brown, to these shores, their experiences, with their connections with several other prominent residents in business and official affairs in their day, which glimpses interestingly much of the social conditions of Honolulu, that dates back to the early 'fifties. It is in pamphlet form, comprising 72 pages.

LANAKILA CHURCH RUINS, HAUULA

SOME interest has been awakened of late in the ruined stone church at Hauula, in the Koolan district of Oahu, judging from the inquiries made for its history. Its commanding site adjacent to the road, just beyond the railway station, makes it the prominent object in the village landscape, which attracts the attention of visitors passing through the district.

As the result of not a little investigation, rendered necessary through the few present residents familiar with the early church-efforts of windward Oahu, and the scarcity of records thereof, the following brief facts are gathered together relating to its history. The people of the district differ widely in their

impression of the time of its origin, though agreeing on the parties instrumental in its erection.

The church is 96 x 34 feet, inside measurement, with walls 13 feet high and 2½ feet thick on a foundation of some 4½ feet, located on a knoll of land known as Helumoa. This name, meaning "count chickens," suggests connection with Kamapuaa, the traditional swine-god, whose depredations began in this neighborhood in the robbing of his uncle's chicken coop, and his escape by way of the celebrated Kaliuwaa falls in the adjacent valley, a feat still dilated on by the villagers.

There are hardly any of the village fathers left, so it was found difficult to ascertain just when the church was started and when completed, but from careful inquiry and search its origin is found not as remote as some have supposed, evidently not earlier than 1852, when Rev. J. S. Emerson of Waialua (who had the pastoral care also of his neighboring districts, Waianae and Koolauloa), reported the first movement in the project, "the collecting of materials for the building of a church in Koolau." The following year, 1853, the progress of the work is shown as "the church walls having been laid up in mortar, the building well roofed and the floor being laid." This was its condition in the summer of that year. At its completion, sufficient for services, probably the latter part of the year, a grand luau or native feast was given the public by way of celebrating the opening, to which Mr. W. C. Lane, father of our ex-mayor, was a generous contributor. Rev. Mr. Emerson, as stated, was its first pastor, and one Sam Kahele the first treasurer, who also acted as a lay reader in the pastor's absence.

In 1854, Hauula was favored with a pastor of its own in the person of Rev. M. Kuaea, who stayed by it about ten years when he was called to a wider field, to become known as Hawaii's Henry Ward Beecher. In his reporting for 1861, "contributions to aid in completing the church" is noted, which indicates that it had several years use unfinished. The succes-

sive pastors to these mentioned have been: Kauaihelo, Kapu, Kekiokalani, Kekoia and Nuuhiwa.

Some say that the name Lanakila adopted for the church, was voted at a meeting of all the Oahu Sunday Schools. Others maintain that it was named after a pali mauka of the church, towards Kāhuku, which is thought to be more likely, though its meaning, "victory," was not inappropriate at the outset, implying success to the pioneering effort. Statements made show it as seating about 500. Of the material in its construction, many stones and coral for lime making were obtained from the Hauula reef, and the timber came from the woods of Hauula, Punaluu and Kahana.

The Hawaiians employed in its construction were: Nakowana, carpenter, of Punaluu, and Ukeke of Kapano, luna. Twelve others were in charge of the umus for lime burning, signs of some of which are still in existence.

Services were discontinued by the resident incumbent, Rev. Sol. Nuuhiwa, about 1897. The want of a good live shepherd was, in general opinion, the cause of the church's decay. It appears that shortly after Nuuhiwa assumed charge he busied himself in erecting a smaller wooden church at Huleaha, by the road, in a more populous section of Hauula, and took the lumber and usable material from the old church to do it with, since which time Lanakila has stood in ruins.

"WHAT'S IN A NAME?" is suggested at the recall of the failure to permanently establish any village or communal estate in these islands to which a foreign personal name attached. It seems a little singular that the several attempts to establish *villes* here have all been such failures that it would tax the memory of most present residents to locate them. Torbertsville on Maui was the first; Princeville on Kauai a few years later was the next. Spreckelsville, on Maui, to which Hornersville was a suburb, were more recent efforts, but resulting in the melting away of the latter long since, and the former is becoming in name a thing of the past also. It is to be seen whether Trentown and Libbyville, on Oahu, and Kurtistown, on Hawaii, will prove exceptions to the above fate in seeking personal identity with Hawaiian soil.

ANCIENT HAWAIIAN THEORIES AS TO THE NATURE AND ORIGIN OF THINGS.

By MATTOON M. CURTIS, *Western Reserve University.*

IT HAS frequently been observed that the ancient people of Polynesia had a remarkable interest in metaphysical problems. Bastian asks in surprise, "Did some distinguished Anaxamander or Pythagoras wander this way?", and Ratzel remarks of their struggle to explain the riddle of the world, that "it is a brilliant testimony to the intellectual ability of the Polynesians."¹ The purpose of this paper is to set forth briefly some of the evidences which show that these high estimates regarding the Polynesians in general are applicable to the ancient Hawaiians in particular, understanding by the term metaphysics a speculative inquiry as to the nature and origin of things.

Two factors which play a large role in modern speculation regarding primitive cults may be disposed of at once. Hawaiian mythology and folklore are surprisingly free from both totemism and nature worship. As regards the latter the worship of Pele, goddess of the Volcano Kilauea, was confined to the Island of Hawaii, while the deification of the shark is entirely incoherent and folklorish. The ancient thought of the Hawaiians is characterized by a humanism which continually reminds one of the *ex analogia hominis* motive, or of the Tylorian thesis; "self-consciousness or belief in the individual soul is the *fons et origo*, the principle of individuation, as well as the explanation of all things in nature." Assuming the validity of Tylor's view that animism in its broadest sense is the background upon which the thought of primitive peoples works, and without discussing some of its more recent modifications,

¹ Fried. Ratzel: *History of Mankind*, Vol. I, pp. 191, 310.

H. A. Keane: *The World's Peoples* pp. 417-418.

E. B. Tylor: *Primitive Culture*, Vol. II, pp. 247.

R. R. Marett: *The Threshold of Religion*, 1909, pp. 115, etc.

Ivy G. Campbell: *Manism, A Study in the Psychology of Religion*.
The Am. Journ. Psy., Vol. XXIX, pp. 1-50.

it may be said that Hawaiian thought is somewhat elliptical, moving about two centers. When the Hawaiians are thinking about the nature of things the notion of *mana* is fundamental, but when the origin of things is concerned the notion of *po* appears to be uppermost. The preliminary question then is what did the Hawaiians mean by the terms *mana* and *po*. Remembering Aristotle's wise dictum not to pretend to greater accuracy than the subject matter will allow, *mana* may be taken as the notion or perhaps concept of psychical power, motion, force, energy, will, or any activity that is super-normal, or arouses in man an extraordinary emotion, feeling, thinking or willing. It reminds one of the wonder, awe, curiosity, which Plato and Aristotle put at the root of philosophy. The term *mana* and its cognates have a remarkably wide currency and almost always they are connected with human thinking. In the Hawaiian language *mana* means psychical or mental power; *manao* means "to think"; *mananao* is "thought"; *manawa* is used for the "emotions" and "feelings". In fact the gamut of *mana* extends from what we call life in a vitalistic sense to what we call god in a pantheistic sense. It is a purely psychological term which never refers to objects of sense perception although such objects may possess *mana*. Every recognized specialist has his *mana*, the chief, the priest, the house, the canoe, and the temple builder. Concretely *mana* may be inherited, increased, diminished or lost. Abstractly *mana* may be the property of a tribe, or a god or a *summun species* in which all things share and to which all striking activities are related. The criterion of *mana* was pragmatic. It is what it does. If it fails to do what is expected it is no longer *mana*. Thus the Hawaiians have deposed chiefs and even gods. In the great reformation of December, 1819, when the systems of tabu and sacrifice were overthrown it was explained that the old order had lost its *mana* and that the new order had a superior *mana*. It is public opinion or thought and at the same time it is divine or supernatural. It is a *vox populi, vox dei*—a notion

somewhat similar to the uses of Toth, Chochma, Vâch, Tao, and Logos. In ancient Hawaii the term po has also various meanings, such as night, darkness, chaos, impotence, negation, non being and sometimes the place of departed spirits. In Hawaiian mythology it seems to have two or three quite distinct meanings. It is a night or chaos which is an inert and helpless nothing, or it contains within itself the potentiality of becoming, or it is wrought upon by god or gods as something objective. If it does not contain within itself the cause of things it is a condition without which things cannot arise or a background on or in which they arise. Po may also have been regarded as a neutral in which the sexes were generated and differentiated by mana. This would be in harmony with the Kumulipo chant and with many of the myths of Polynesia. There is a general belief that everything in nature is male or female. Hawaii had its Empedocles or Camararius in the person of Auwe, an attendant upon the great Kamehameha, who, according to Mrs. Judd, taught sex differentiation in the vegetable world. There are two very remarkable Hawaiian cosmogonic myths which have not been brought together for the purpose of throwing light upon the nature of mana and po, and upon the different processes by which all things came into being. These two song myths apparently present two quite distinct metaphysical views both as to the nature and origin of things. Without discussing the question of priority in time as between these two myths let us glance at the more naturalistic view as set forth in the Kumulipo chant which Bastian regarded as "one of the most wonderful creations of the human spirit."

Fragments of evolutionary cosmogonies are common throughout Polynesia. Thus in Samoa we have the striking myth of the becoming of things through the struggle for existence. Fire fights with the rocks and is extinguished; the large rocks fight with the little rocks and are overcome; the grass attacks the little rocks and wins but is overcome in turn by the shrubs

which are later beaten by the vegetable creepers, and these rotting give rise to maggots which give rise to animals and to men. The beautiful and familiar Maori story of Rangi and Papa is another effort to give a naturalistic setting to the becoming of things. David Malo, a native of Hawaii born about 1793 and writing his *Hawaiian Antiquities* about 1835, is surprised at the conflicting accounts of the origin of the islands and of man. He divides these into two classes, those which refer beginnings to male and female principles or persons, and those which refer beginnings to natural causes, remarking: "Perhaps this is the best solution." The Kumulipo manuscript which Bastian brought to light from the library of King Kalakaua at Honolulu early in 1880 surpasses all in its philosophic outline and detail.² The transcription of this legend must have been made after 1820, as before that time the Hawaiian language was not reduced to writing, but the antiquity of the content is witnessed not only by its being sung to Captain Cook but by its antique text, the decipherment of which received little aid from Andrews' *Hawaiian Lexicon* and still less from Hawaiian scholars. While not all the names of insects, birds, fishes and trees can be identified, the general outline is clear. According to this chant the beginning of things is hidden in Po, a dark, impenetrable chaos, which originated slime and after a very long time gives rise to dual principles, the male, Kumulipo, "the root of the abyss" and the female Poele, "the dark night". These impersonal principles, activities or energies, first produce zoophytes; coral insects from which was born perforated coral; worms which gathered mud

² Adolf Bastian: *Die Heilige Sage der Polyneser*, Leipzig, 1881, s. 61-121.

Edward Tregear: *The Creative Song of Hawaii*, Jour. Poly. Soc., Vol. IX, 1900.

Th. Achelis: *Ueber Mythologie und Cultus von Hawaii*, Braunschweig, 1895.

R. B. Dixon: *Oceanic Mythology*, Boston, 1916, pp. 15-17.

Liliuokalani, *Queen of Hawaii: An Account of the Creation of the World According to Hawaiian Tradition*, Boston, 1897.

David Malo: *Hawaiian Antiquities*, Tr. and Ed. by Dr. N. B. Emerson, Honolulu, 1898, pp. 20-25.

into heaps; star fish whose children were starry. Then lower forms of plant life appear and all living things multiply. The land rises and a veritable struggle for existence goes on in which the higher and stronger plants and animals feed upon the weak, but without extinguishing them. Of all this the swimming octopus, the sole survivor of a former world, is an observer. At the close of the first period the sway of Kumulipo passes to the atmosphere or possibly ceases, and in the second period the dual agencies of becoming are the black night and the wide-extended night which bring forth leafy plants and the variegated insect world of butterflies, locusts, ants, etc. Then birds of various kinds arise and fly through the air, and finally the first shimmerings of dawn appear. In the third period male and female principles still rule but under different names indicating new modifications of po. Here fishes and wonderful things of the deep appear and the blowing whale swims about the waters. The fourth period presents the dim and misty appearance of the sun under which creeping monsters move about on the slimy earth. The turtle and the useful plants appear, and in the effort of new births all nature groans and is full of tumult. The convulsions of nature continue in the fifth period and the highest animal known to the ancient Hawaiians, the swine, is produced. Time is now divided into night and day, and the conditions of knowledge and ignorance, of memory and of the useful arts are present. The sixth period is given to the genesis of mice on the land and dolphins in the sea, while the seventh period is one of psychical evolution in which practical wisdom was carried into proverbs, and the formulae of magic were devised for the service of man in his struggle for existence. Observation through ear and eye were greatly developed and thought was deepened. In the eighth period raging and ruthless nature comes to an equilibrium and joyful peace (*Lailai*) prevails. "Born, man as a leaf, born male and female. Born the hidden gods." But the female principle takes the lead in the first

woman Lailai. Then appeared Kii (man), then Kane (god), then Kanaloa (monster) and then through Lailai in sporting, laughing alliances with them arose the human race, or the Hawaiian people. Malo, who probably represented a common interpretation of the Kumulipo chant, says the first human being was a woman, named Lailai and that her ancestors and parents were of the night. Ellis, in his "Tour" notes that some of the Hawaiian priests hold that the first man was made or produced by a female deity. In this chant the lower animal life precedes vegetable life, and there is an implication that man was born male and female and was later differentiated. It is evident that the chant is an attempt at a naturalistic explanation of the world and that great stress is laid on the forces which are intrinsic to po. Still it is not an evolutionary or transmutational account, although its development is from the simple to the complex. Not only is there no suggestion that one stage gives rise to the succeeding stage but the names of the male and female principles are changed, indicating the intrusion of new or modified forces acting as creating demi-gods. The refrains indicate that water is life to plants and fishes, while the "Io" or "eggs and Io" are life to birds. If there is any thought of evolution or of emanation, it is only caught as a lo here and a lo there in time and space. The myth evidently belongs to the same class of serial developments as are found in the thought of the discontinuity of species represented by Plato, Leibnitz, Schopenhaur, and Comte. Still in this chant "man is born as a leaf", and in another version the palai fern is spoken of as shooting forth leaves of high chiefs. The stages of the myth suggest some misplacement, as in the present form two periods of preparation for the future of man are presented before his appearance. This would be a teleology more extraordinary than that of Wallace in his accounting for the large brains of primitive peoples as being a preparation for future needs. The later periods should be in the order of six, eight, five and seven as five and seven evidently deal

with the technical and mental development of man. In another version of this myth, as Thrum has pointed out, man was born in the dark and woman in the age of bubbles of the third period. In song myths there seems to be considerable freedom of transposition and verse divisions. The most striking thing about this myth is the suggestion that the gods appear after man, thus indicating a continuous creation extending to the superman and that all things, from zoophyte to god, lie within one frame of becoming. Equally suggestive is the appearance together of Kane, the good, and Kanaloa, the evil, which may have a reference to the most elementary dualism in human nature. Another association is possible, as in one or two ancient songs, the east is called "the great highway of Kane", while the west is regarded as the way of death, the way of Kanaloa, the god of the underworld. The absence in this chant of any reference to the great gods Ku and Lono is probably indicative of its naturalistic motives and of its antiquity.

Over against the quasi naturalistic view of the Kumulipo chant is the Kumuhonua chant, which is presented by Judge Fornander in his classic work, *The Polynesian Race*.³ For more than thirty years, with a corps of native assistants, he studied Polynesian problems and especially the ancient history of the Hawaiian people. Collating the different versions of the Kumuhonua song of creation, Fornander finds that the old Hawaiians at one time believed in and worshiped one god comprising three beings called Kane, Ku and Lono, equal in nature but distinct in attributes; that they formed a triad commonly referred to as "the one established", and were worshiped jointly under the mysterious name Hika-po-loa, while another ancient name was Oie, signifying "most excellent, supreme".

³ Abraham Fornander: *An Account of the Polynesian Race, Its Origin and Migration, and the Ancient History of the Hawaiian People to the Times of Kamehameha I.* Vol. I, 2nd ed., 1890, pp. 61, etc., 211-213.

Sheldon Dibble: *History of the Sandwich Islands' Mission*, 1839, p. 135.

Thomas G. Thrum: *Fornander Collection of Hawaiian Antiquities and Folk-lore*, Bishop Museum Press, Honolulu, 1916-1917.

This triad existed before, in or from po. By an act of will these gods dissipated po and light broke into space. They created three heavens as their several dwelling places, also the sun, moon, stars, and a host of ministering spirits. Last of all they created man in the likeness of Kane, making his body of red earth and the spittle of the gods, and his head of whitish clay brought from the four ends of the world by Lono. Then the three gods breathed into the image, called upon it to arise, and it became a living being who was named Kumuhonua. Later, woman was created from the side of man while in slumber which, like the Kumulipo myth, suggests that man at first was androgynous or bi-sexual. Another version of the same chant notes the cyclical view of world history in saying that Kane destroyed the world by fire and then recreated it. Fornander remarks, "Through all the Polynesian cosmogonies, even the wildest and most fanciful, there is a constant, underlying sense of a chaos, wreck, po, containing all things and existing previous to the first creative organization; the chaos and wreck of a previous world, destroyed by fire according to the Hawaiian legend, destroyed by water according to the Samoan legend; a chaos, ruin or night po, in which the gods themselves had been involved, and only in virtue of their divine nature, after continued struggle, extricated themselves and reorganized the world in its present pattern." Still another tradition relates that Kanaloa, the evil one, was present at the creation of man. Jealous of Kane's work and failing to repeat it, he tells Kane, "I will take your man and he shall die." It is interesting to note that Kane is the only god which appears in both chants. In the former he is evolved or created while in the latter he is the creator. Kanaloa also appears in both myths; in the former as a monster, and in the latter as the evil one, the opponent of Kane and of man. In early tradition, Kanaloa is the spirit of opposition; in folklore he is the god of serpents(?), lizards and fishes. There is no indication in Hawaiian tradition that Kane and Kanaloa represent a con-

flict between light and darkness but rather a conflict between good and evil as regards man. His later enrollment among the gods and his companionship with Kane may be due to this moral dualism. The incompleteness of the Kumuhonua genealogy is striking, as no mention is made of the creation of the vegetable and animal kingdoms, to which so much attention was given in the Kumulipo chant, but Thrum has shown that the prose versions mention hogs (puaa), dogs (ilio) and lizards (moo) as having been created by Kane. The similarity of this myth to that of biblical genesis has raised some suspicion of missionary gloss or influence. This appears as entirely gratuitous to one acquainted with the mythology of Polynesia and the widespread elements of the biblical myth. There is not a detail of this chant that cannot be duplicated in early Polynesia. Hewahewa, the last of Hawaiian high priests, told the early missionaries in 1820 that the only difference between his god and theirs was that theirs was "fixed on paper" and Dibble, one of these early missionaries, remarks: "When the Sandwich Islanders heard the names, Jehovah, Jesus Christ, and the Holy Spirit, they substituted at once the names of three of their former gods." A striking parallel of this direct transference of thought is found in Southern Polynesia, where, according to W. W. Gill in his "Myths and Songs", the natives transfer most appropriately and beautifully the name of Eo-Ora, the living god, to Jehovah, as His worshipers never die. Considering the testimony of Hawaiian scholars from Fornander to Tregear, and the high compliment which the latter pays to this myth, there seems to be no good ground for doubting that it is a veritable ancient product. Still it is to be noted that Malo did not refer to this chant in his Hawaiian Antiquities. It must have been an oversight like that of his want of reference to the remarkable Hawaiian methods of irrigating by ditches. Two Hawaiian stories of creation may be passed by for, as compared with the Kumuhonua chant, they illustrate the difference between mythology and folk lore. The tradi-

tions to which we refer are the well-nigh universal one of the bird laying an egg on the primeval waters which, bursting, gives rise to the world, or to Hawaii nei, and that of Papa giving birth to a calabash, the different parts of which, being distributed by Wakea, become the heavens and the earth and all their furniture.

The metaphysical content of the Kumuhonua myth is not altogether clear from its presentation and requires some comparative reference to similar myths in other parts of Polynesia. That the three gods of Hawaii were worshiped as different aspects or attributes of a one supreme god, there can be little question. The old Hawaiian ritual after mentioning the gods by name, generally beginning with Kane, concludes with the henothetistic or monotheistic refrain: "He is god. It is true. It is so. He is the true god." That the nature of this god, whether Hikapoloa or Oie, is the supreme power and at the same time the most excellent, thus having in concrete human experience, both a logical and a moral meaning, may be gathered from the body of Hawaiian myth and folk lore of which the familiar stories of Owaia and of Maui the Hawaiian Prometheus, are illustrations. The Hawaiian "supreme" is the life in which all things participate and at the same time, it is the source of all mana or special powers and excellencies. We may gather light on this point by a reference to the Taaroa of Tahiti, and the Io of the Maori.⁴ Io, sometimes regarded as the Oie of the Hawaiians, is the pith, core, essence of things, the great originator, the all-father, who pervades space and time, has no residence, cannot be localized, and whose name is generally tabu. Still, prayer is addressed to him as in the fragment; "whilst I my offerings make and chant my sacred song to Him, the one Supreme." The nature of Io appears to

⁴ J. A. Moerenhout: *Voyages aux îles du grand océan*, I. 419-423.

A de Quatrefages *L'Espece Humaine*, 361, etc.

Abraham Fornander: *The Polynesian Race*, I, 220-223.

Elsdon Best: *Spiritual Concepts of the Maori*, *Jour. Poly. Soc.* IX, 174. *The Cult of Io*, *Man*, Vol. XIII, 1913, pp. 98-103.

Edw. Tregear: *The Maori Race*, 1904, pp. 432-298.

be mana in the sense of thought for, according to many authorities, in the oldest Maori legends of creation, thought first arose in the primordial night as the most subtle of all forces, then creative desire arose and, last of all, matter. As the genealogies show a close relation of Hawaii and New Zealand, so the legends show intimate commercial relations as early as the twelfth century between Tahiti and Hawaii. The Tahitian Taaroa is hymned in the most remarkable language.

"He was, Taaroa was his name,
He abode in the void, no earth, no sea, no sky..
Taaroa calls but naught answers,
Then alone existing he becomes the universe.
Taaroa, like the seed ground, Taaroa rocks foundation,
Taaroa, like the sea sand, Taaroa, widest spreading,
Taaroa, light forth breaking, Taaroa, rules within us,
Taaroa, all around us, Taaroa, down beneath us,
Taaroa, lord of wisdom, He created the land
Of Hawaii, Hawaii, great and sacred."

In all the famous literature of pantheism, nothing excels the simple beauty and the comprehensive thought of this song of a primitive people in the heart of the Pacific ocean. It reminds one of the thought of Xenophanes: "All eye, all ear, all thought in God," and of the lines of Aeschylus: "Zeus is the heaven, Zeus the earth, Zeus the air, Zeus is the universe and all besides." But more than this it reaches out through the philosophy of the most civilized people, through Plato and Plotinus, through Bruno and Spinoza, through Fechner and Paulsen even to our own day. Fornander remarks that this chant agrees thoroughly with the Marquesan and Hawaiian poems on the same subject, and that there can be no doubt of its great antiquity.

When one turns from these high thoughts of the supreme and excellent one to its attributes in the triad of Kane, Ku, and Lono, one experiences about the same feelings and difficulties as in passing, say from Christ's teaching about God to the wranglings of theologians about the Trinity and the nature and functions of its three persons. It is what happens in metaphysics when one seeks to pass from general notions to cut and dried concepts. Then, too, folk lore is always apt to play havoc

with the more reflective mythology and among people without a written language and with a vanished priesthood the role of folk lore persists when mythology grows pale or disappears. "Scattered among the Polynesian islands," says Tregear, "are fragments of belief in which every variety and eccentric inversion of the attributes and positions of the early gods toward each other may be found." Even Tangaroa, among the Marquesans, became the evil one, as also among the Hawaiians Kanaloa the evil one become one of the gods. It is quite probable that these gods are one and the same, playing a most confusing moral role throughout Polynesia. These and similar movements of thought raise an interesting problem in human attitudes. In southern and central Polynesia, Tane, Rongo and Tu, or Kane, Lono and Ku are often thought of as representing light, sound and stability, but in Hawaii the prevailing conceptions are slightly different. Kane is the creating god, the originator and founder of the world, the father of men, the heavenly father. But above all he is the "god of life", "god of power", to whom "the heaven and earth are sacred". It is probable that before the twelfth century the prevailing worship of Hawaii was Kane worship. Lono is a friendly providence directing the elements and human affairs whose ritual was mild, being chiefly concerned with giving freedom to mortals through purification and pardon of sins. As Thrum has pointed out, the great god Lono is probably not to be confused with Lono, the deified hero in whose honor the annual games were held, and whose return was supposed in the appearance of Captain Cook. Still, considering the kind of worship that was accorded to Cook, the distinction between these gods is not quite clear. The older Hawaiians, including Queen Liliuokalani, as shown in her introduction to the Kumu-lipo chant, believed that Cook was identified with Lono, one of the chief gods. Numerous traditions, as well as the story of Captain Cook, as the returned Lono, show that he was a deified hero. Ku is referred to as architect and builder, and is regard-

ed as a severe, exacting, jealous god, who rules by prescriptions, and demands temples, and sacrifices of both animals and men. The chant of Kualii opens with the words: "A god is Ku, a messenger is Ku from heaven, a foreigner is Ku from Kahiki." Ku means east or eastern and Kahiki-Ku means a "foreigner from the east". Ku may be connected with the bloody rites of Mexico which possibly came into central Polynesia and through Paoa were carried to Hawaii about the twelfth century. In folk lore Ku is the dog slain for his cruelty. Although Ku had his special priesthood, it is fairly clear that he never had a deep hold upon the Hawaiian people save through their fears, and through his intimate relation to the general tabu system of government control. His relation to Hawaiian life and religion was not wholly different from that of Jehovah to the more strenuous form of New England Puritanism. It was this god with his tabus and human sacrifices that the Hawaiian voluntarily repudiated and overthrew in the reformation which culminated in the battle of Kuamoo, December 20, 1819; while long before this the episode with Captain Cook in 1778 seems to have engendered profound scepticism in regard to the Lono cult.

If the above account is approximately correct, the Hawaiian mythology shows both free constructive imagination and differentiation. The latter element is fully borne out by the multiplication of lesser gods, each of which has its particular mana having some relation to individuals. Whether seriously, or from a sense of humor, which was keen in the Hawaiians, the lesser divinities were often lumped together in worship as is shown by many fragments. Thus in an old chant Lipewale addresses, "Ye forty thousand gods; Ye four hundred thousand gods." Their mythology is also a warning against the common supposition that a particular primitive people must have homogeneous beliefs. Here is a people isolated, few in numbers, of the same race, language and environment, with two or more very distinct and elaborate beliefs regarding the

nature and origin of things. The cake of custom has been greatly overdone, and the freedom and facility of the primitive mind too much ignored. Still, this freedom has, metaphysically, its limitations to the emphases and fusions of the human, the divine and the cosmic motives. All three of these motives are present in Hawaiian thought and while the cosmic is weak, one must not overlook the fact that a theory of world cycles is present in both the Kumulipo and the Kumuhonua chants, thereby suggesting a quasi mechanical view. Anthropologists and ethnologists have often been too anxious to carry through preconceived theories, and the spirit of system has been too imperious. It is not too much to say that the old Polynesians, and especially the Hawaiians, show great freedom in speculation and show the rough outlines of all schools of metaphysics. The various relations in which they placed mana and po clearly suggest what we call dualism, materialism and spiritualism. It is evident that at least the Hawaiians, Tahitians and Maoris cast their lot with a spiritualistic monism in which thought or mana was the first principle, expressed or implied in all the cosmogonies and that this principle was always a generalization, *ex analogia hominis*, from human activities, such as thinking or willing, or even as respiration, or speaking, or reproduction, or sleeping and waking. This might imply a dualism within mana but this is not the prevailing Hawaiian thought. Mana as a notion or concept is activity without definite, moral or logical qualities, but takes them on only practically in po, persons, things, gods and demigods. Every extraordinary power is explained by mana but this particularized mana is expected to justify itself in experience or a mistaken reference is suspected. The question whether the Hawaiian notion of mana is a personal one, is solved by remembering that all their thought is evolutionary, not involuntal, running along the analogies of inner experience; by observing that in the Kumuhonua chant, the members of the triad are personal and fuse henotheistically into the notion of a superpersonal; and that in

Kumulipo genealogy the male and female principle becomes male and female persons just as soon as anything is done; and that while the Hawaiians were in doubt as whether the tap root was male or female, they had no doubt as to its personality in the sense of a thinking, feeling, and willing something. Although living in the midst of volcanoes, earthquakes and tidal waves and being experts in navigating their canoes by the stars, and loving plants and animals with a curious devotion, there is a strange absence in their mythology of nature worship and of the influences of environment. Among primitive peoples, they may properly be called, The Humanists.

JAMES B. CASTLE—BENJAMIN F. DILLINGHAM AN APPRECIATION.

HAWAII was called upon this past year to mourn the loss of two of her best-known public-spirited citizens, James Bicknell Castle, and Benjamin Franklin Dillingham, both of whom passed away within a few days of each other early in April; Mr. Castle suddenly after but a brief illness, while that of Mr. Dillingham had been somewhat expected.

In the death of these two foremost practical builders of Hawaii's enterprises, the business community has lost men of vision and faith; men who were courageous in their aims to achieve big results through the benefits to others. In this they were singularly alike, the various projects they promoted or entered into, to encourage industrial, agricultural and other effort being of a corporate nature that others might share in the successes they had the faith to foresee; taking the laboring oar in each project till clearing the difficulties that are invariably met with in the promotion and development of new enterprises of magnitude.

Mr. Dillingham's experience in establishing the Oahu Railway that would have discouraged ordinary mortals has been often told, but his arduous effort and strong faith on pushing that project through to a successful issue led the way to the establishment of new and enlarged agricultural enterprises that are classed among the best dividend-paying concerns of the islands; hence, beside the products marketed, land values have increased, all of which now awards the government a large annual tax revenue. In these Oahu projects Mr. Castle was an early courageous co-laborer, in engineering and developing the Kahuku Plantation to success ere relinquishing controlling interest, subsequently encouraging the agricultural possibilities of the Koolau districts and establishing a small railroad from Kahuku to as far as Kahana, to facilitate the labors of the producers and the marketing of their products; a natural feeder to the Oahu Railway.

Few Honoluluans were aware of the obligations they are under to Mr. Castle for the comfort and convenience of their Rapid Transit service by his bold step at a critical stage in its career that placed it on a basis for the success which he foresaw. Another bold venture, and of larger magnitude, was his purchase of the Spreckels' sugar and commercial interests on Maui, said to be at a cost of \$2,000,000, which to-day is ranked among the best dividend-paying concerns in the islands. A man of ideals, he desired to see a better element of introduced labor for the development of Hawaii, and at his own expense sent for and brought in the Russian colony of Molokans from Los Angeles, and settled them, not on properties of his interests, but at Kapaa, Kauai. Unfortunately, through disruption among themselves they proved a disappointment and gradually drifted away again.

An undertaking of wide scope characteristic of Mr. Castle's enterprise is evidenced by his projects on the island of Hawaii in opening up and demonstrating the possibilities of the ohia and koa forests of Kona and Puna for commercial uses, and the practicability of cane-growing through Kona, with the

central-mill idea, to meet the peculiar conditions of that district.

And aside from his business activities he was likewise eminent in literary and artistic tastes, possessing a fine library which was his delight in spare hours for the recreative indulgence of his intellectual nature.

Of Mr. Dillingham, when his various Oahu projects were well advanced, which included wharf and other improvements to facilitate shipments and enhance the interests of the port, his next venture was in securing the Eleele Plantation, on Kauai, from which a new concern resulted in the formation of the McBryde Sugar Co. for an increased planting area, with new and capacious mill for same.

Ambitious for still greater achievements he struck out boldly for the floating of the Hilo Railroad project for the enlargement of the resources of that district, and, despite setbacks and disappointments in securing foreign aid, through our political upheaval, he was again successful. The opening up of the Olaa tract of land, and interest of its new settlers in coffee culture rendered Hilo's outlook roseate, especially with the commencement of the breakwater for the protection of its spacious harbor and encouragement of shipping, but when failure stared in the face of coffee-growing effort, and business interests connected therewith became clamorous, it was Mr. Dillingham who stepped into the breach and with a few staunch allies took over the unprofitable coffee lands, and organized the Olaa Sugar Co. whereby the late owners received far more than could have been realized under forced sales. The extensive area to be cleared and planted to cane and the erection of a modern mill adequate for same required large capitalization.

The construction of the Northern line Hilo railroad was his next ambitious effort to penetrate the broad fields of Hamakua and open up new possibilities and a means of marketing its products. This branch called for engineering skill of the highest order for its construction along the bold coast; bridging

gulches and ravines, tunnelling and cutting through hills, all of which are a marvel to visiting experienced railroad men of the mainland. In spite of delays through labor conditions, difficulty in having orders filled, and increase in cost of material, the road was carried through to completion by Mr. Dillingham's courageous energy, for those coming after him to reap the reward.

In Sunday-school and church work, as also in Y. M. C. A. and educational work, he was an active participant. Large-heartedness was characteristic of him; he was ever helpful to others, and it is said of him in his benevolences that every institution, educational or eleemosynary, in the islands of his knowledge were recipients of a generous sum before his death.

In the developmnt of the latter projects of these two princes of industry, though unable to reap pecuniary benefits therefrom, they nevertheless saw their labors had not been in vain, but so established for others to profit thereby, proving themselves public benefactors all through their career, and leaving a memory and example which is an inspiration for others.

And still another of the foremost men of our island community has been called to his reward, of whom the following fitting tribute appeared in the *P. C. Advertiser* of July 26, 1918:

In the death of Joseph Platt Cooke the community is called upon to mourn the passing of another foremost citizen, a man who, until a year ago, when his concentrated efforts brought a physical breakdown, was in the forefront of the commercial and philanthropic work of the Territory.

Mr. Cooke was almost the first to whom many turned when some project for the general good of the community was in need of financial help, and no good cause ever went to him for assistance in vain. He was not an indiscriminate giver, but once satisfied of the merit of the project his generosity usually set the pace for others. An endorsement of a man, a policy or a project by J. P. Cooke stamped it as bona fide and worthy,

such was the esteem in which his judgment and sincerity was held by the community at large.

A descendant of an early missionary family, Mr. Cooke was connected by ties of relationship and early friendships with all the principal kamaaina families of Hawaii, while his geniality, his straightforwardness and his sterling honesty in word and deed made him a most popular figure with the later comers to the Islands.

His death is a distinct loss to Hawaii and the mourning over his sudden death will be widespread and sincere.

POETRY OF THE POLYNESIANS.

BY GEORGE W. STEWART.

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AMONG the ten thousand coral fringed islands whose shores are whitened by the breakers of that vast ocean rolling between the Orient and the Occident, lie undeveloped mines for the literateur rich as Pactolian sands. The pioneer prospectors in this little-known field have unearthed many treasures worthy of careful preservation, and located outcroppings that indicate the existence of extensive leads of hidden wealth. And when these shall have been worked, the world that has been charmed with the German Nibelungen, the Finnish Kalevala, the Ramayana and Mahabharata of the Hindus, and the Eddas of the Scandinavians, will read and admire and be amused by the story of the ancient gods and mythical heroes of the island world, whose exploits were not less wondrous than those recounted in the poems or collections of verses named, and, indeed, bear a close resemblance to them.

To many it may appear presumptuous to claim the existence of anything like poetry among a people who have been commonly regarded by those unacquainted with them as a few degrees removed from the brute creation; but in the eastern

groups of the Pacific, inhabited by the Polynesian race and extending from Hawaii as far south as New Zealand, songs have been sung by native poets that are worthy an honored place in any library of verse.

The Polynesians are superior mentally as well as physically to a majority of the dark races that have not advanced (until recently through contact with Americans and Europeans) beyond the savage state, although in some respects, as measured by the standard of our civilization, they have reached a level below which there is little possibility of descent. And if they are capable of more advanced thinking than we are wont to meet with in the rude chants of barbaric people, yet their legendary poems seldom possess elevated ideas that make the songs of other and better-known ancient nations so attractive.

The style and tone of poetic compositions are indicative of the intellectual condition of those by whom and for whom they are written or recited. The versification of European poets centuries ago evinced a loftiness of thought and beauty of diction only possessed among a people of advanced mental culture; while the best of the latest Polynesian efforts are similar to the oldest extant which that people brought with them in their journeyings from their early home on the mainland of Asia, whence they spread eastward and northward and southward until no habitable islands remained to be peopled. That there has been no improvement is not surprising. Surrounded at all times by the same influences and not enjoying the benefit of intercourse with people differing from them in speech and habits, few new words were acquired; and, as thought in its development cannot maintain a faster pace than the growth of the language used to express and embalm it, new ideas and evidences of progress are wanting.

The earliest Arabic poetry is not unlike the Hawaiian in quality and manner of expression; but with the acquisition of greater knowledge by the Arabs during the Middle Ages, their romance and poetry attained a high degree of excellence.

In later years, however, they have lost the proud intellectual position they once occupied and their poetry has suffered from their retrogression. The poet is also influenced by other properties of the language that is made the vehicle of his thoughts. If it be pliant and smooth-flowing, there is a constant desire to employ it in the most musical forms; but if it be rugged and rebellious, ideas cannot be portrayed in pleasing colors, and a great stimulus to poetic composition is wanting. The language of the Armenians, for instance, is harsh and unpleasing, and although possessing a literature rich in philosophical, historical and theological writings, it is lamentably poor in poetry.

The Polynesian dialects, if less rich than the Arabic, are not fettered by the harshness of the Armenian, and are well adapted for song. The people, too, are of a poetic temperament, having a natural fondness for rhythm of utterance, music and motion—that triumvirate or trinity of nature so powerful at once in expressing and ruling the emotions. Lovers of poetry as well as poets are born, not made, and where there is none of the former there must necessarily be few of the latter, in conformity with the prosaic but immutable law of supply and demand.

And where poetry does exist it cannot be suppressed. The Arab casts a spell of enchantment over the burning sands of the desert; the Norseman sings of the snow and the frost; the Polynesian whereso'er he may turn, is met with a theme for song. Every plain, inlet and stream, every mountain peak or other landmark, is associated with traditions of gods and famous warriors, and every island and intervening channel has been the scene of numerous battles and thrilling exploits. Nature, too, has been prodigal in the distribution of charms about his native islands, "where every prospect pleasing is." Every swaying tree, every sigh of the wind, every foam-crested wave, every angry breaker, emits a note of music and suggests a poetic thought. He breathes the air of poetry and sings because he must.

From time immemorial these Pacific Islanders like the Gaels, the Cymry, the Anglo-Saxons and various continental peoples, had their bards who composed and chanted poems in honor of their chiefs and beautiful women. By them, also, were preserved the ancient songs and traditions, and the genealogies of the chiefs, which were recited on public occasions. These were learned by rote and passed down with the greatest care from generation to generation. It is astonishing to know the number of long poems that some of them learned in this way and were able to repeat correctly. Kekauluohi, one of the wives of Kamehameha I. of the Hawaiian Islands, possessed an extraordinary memory and was selected by the kings as a repository of ancient lore. Many historical and other songs have been saved in this manner from the fate that threatens the race whose emotions and passions were once swayed by them. What is preserved and reduced to writing would fill a number of large volumes and enough has been put into English to discover some of its peculiarities.

Several of the American and English missionaries in the Pacific have made the history and customs of these people a study and translated many of their legends and chants. The largest existing collection of these traditions and meles pertaining to the Pacific Islands, gathered by the late Judge Abraham Fornander, is fortunately in possession of the Bishop Museum, where it will be carefully preserved.*

Translation from the Hawaiian (the following remarks are confined principally to the meles, or chants, of the Hawaiian Islands, but will apply in nearly every particular to those of other Polynesian groups) into English is attended with much difficulty, so great is the difference in the construction of the two languages. While the Hawaiian is deficient in words representing ideas that can only be produced by greater cultivation, or expressing abstract ideas, it is exceedingly rich in specific terms admitting of delicate shades of meaning that

* This collection is now in course of publication.

cannot be correctly represented in English. This is particularly true of the verbs which, in their moods, tenses, numbers and persons, admit of nearly 3,500 forms, some of which it is impossible for the foreigner to learn to distinguish between, without long and careful study. In the use of the verb, the formation of words from the radical—usually a dissyllable—and in certain peculiarities of construction, the language resembles the Hebrew. Some of the ancient legends also read like the Hebraic.

Words and syllables in the Hawaiian or other languages or dialects of Polynesia end in a vowel, and two consonants never occur together. The syllables are short, containing usually but one or two letters, and never more than three—a consonant and two vowels. Many words consist entirely of vowels, and short sentences without a consonant are sometimes met with. This would render the language unpleasantly guttural were it not for the frequent recurrence of liquid sounds. The only consonants in the Hawaiian alphabet are h, k, l, m, n, p and w.

By its flexibility the language is well adapted for poetic composition, and the license allowed Hawaiian poets is not less liberal than that accorded to our own. For the purpose of modifying the meaning, or for the sake of euphony, words may be formed by the reduplication of either the first or second syllable of the root, by prefixing other syllables to the words thus formed, by doubling both syllables of the root, by prefixing or suffixing certain syllables to the same, or by the insertion of one or more letters (sounds) in some words. Words are also abbreviated by the omission of the initial vocal letter (sound) and in other ways. In the meles many words occur that are not used in conversation and combinations are permitted that are not elsewhere to be met with.

Hawaiian poetry does not conform to our grammatical rules prescribed for versification, or to styles formerly in vogue in Europe. It is not alliterative like that of the early Anglo-

Saxon, Scandinavian or Tamul, nor does it rhyme like the oldest existing specimen of Scottish poetry. There is no regular alternation of syllables differing in quantity, and, unlike our ordinary blank verse, the lines have not a corresponding number of syllables; yet it is readily distinguishable from prose. It is measured by sound and not by feet, and being invariably chanted, in tunes adapted to the style of composition, is not lacking in music and rhythmical pulsations.

Alliterations are frequent but not methodical and are due more to the small number of sounds in the language than to the design of the composer. Occasionally we encounter perfect rhymes, or find several successive lines of iambic, trochaic or other measure, but their occurrence is purely accidental. A good line is recognized by the composer, however, and is sometimes repeated unaltered or with slight change of form; or may be made to occur at intervals as a refrain.

Although possessing a love for musical language, the Hawaiian is unable to appreciate rhyme or metrical precision. If the thought expressed be poetic and be poetically expressed he desires nothing more. Even those of the present day who have had the benefit of an English education and are familiar with a number of hymns and songs translated into their own language, see no beauty in rhyme, and songs they have themselves composed to popular foreign airs have lines of unequal length, necessitating in singing the prolongation of certain words in some and rapid enunciation in others. Even the late King Kalakaua, who had read extensively in English and wrote his own language gracefully, was not an exception. The first stanza of one of his popular songs, written in both languages, reads:

"Be still my puuwai
E nae iki nei,
Hanu malie, nahenahe,
Sweet Lei Lehua."

A stanza of a prize hymn to the tune of "God Save the

King," composed by Lunalilo before he ascended the throne, is as follows:

"Ka inoa kamahao
Lei nani o makou,
E ola e!
Kou eheu uhi mai
Pale na ino e,
Ka makou pule nou,
E ola e!"

A hymn, formerly the national anthem of Hawaii,* is similar in respect to rhyme. And yet none of these is devoid of poetry. The following is a translation (not literal) of the verse from Lunalilo's hymn above. (Translated by Rev. L. Lyons.)

"Royal, distinguished name,
Our beauteous diadem,
Long life be thine;
Thy wing spread o'er our land,
From every wrong defend;
For thee our prayers ascend—
Long live our king."

The haku meles, or poets, have always been highly honored in the Hawaiian Islands. The sole occupation of many of them was the composing and chanting and preservation of meles, and in some cases the office was hereditary. There were several classes of meles—songs of war and adventure, laments, love songs, etc., but there seemed to be reflected in many of them the unhappy social condition of the people, for, throughout Polynesia owing to frequent wars, the oppressive regulations of the priesthood and the tyranny of the chiefs, it might have been truly said,

"Pleasures are
As birds which light and fly."

The brief existence of peaceful periods is well expressed in the following extract from a dramatic song composed in Mangaia, an island of the Hervey archipelago, wherein reference is made to the "behest of Rongo," the god of war.

* Composed by the late Queen Liliuokalani, sister of Kalakaua, entitled: "He Mele Lahui Hawaii".

* "An end was put to the dance Tautiti,
By the warlike behest of Rongo.
Alas, Tane! author of all our amusements,
Those pleasures all came to an end;
For Miru's dread oven forever burns
In the shades!
She devours all who go down."

The muse's natural form of expression is one of joy; but if joy be crushed it will make itself heard in lamentation, and Polynesian poetry, so far as rendered into English, is almost an unceasing wail; and when it does take a lighter vein it is too often sensuous, lewd and debasing.

Some of the poets when composing would select a retired spot where, secure from interruption, they could clothe their ideas in musical phraseology. Most of the chants composed in this manner were short and often excellent. Some of the best, exhibiting the purest poetic spirit, were composed by women. Few long ones, however, were the product of one person. The famous prophecy, "Hau ka Lani," foretelling the overthrow of Keoua, a Hawaiian chief, by Kamehameha, eight years before the event took place, consists of several hundred lines, and was composed by a chief named Keaulumoku. Joint authorship was common. The "Inoa o Kualii," an epic of more than six hundred lines, was composed by two brothers and chanted by one of them within hearing of two armies immediately before a battle. Another method of composition described by the late Hon. Lorrin Andrews* was for the poet to summon a few of his poetic brethren, and after announcing his subject and explaining the manner in which he proposed to treat it, recite what he had composed, line by line, or thought by thought, the others acting as critics. Every thought approved by all would become a part of the mele. Each was revised in this way, approved unaltered, rejected or amended, the sense and words being carefully adjusted to what

* This and other selections from Manganian compositions occurring in this review are from Wm. Wyatt Gill's "Myths and Songs from the South Pacific", or "Savage Life in Polynesia".

* Islander, Honolulu, 1875. p. 35.

proceeded. They then assembled from time to time until the mele was finished; and each had it thoroughly fixed in his memory and was able to repeat it verbatim. A stranger method was for a chief to gather about him a number of other chiefs, noted warriors and composers, propose a subject for a mele and appoint each one to furnish a line or idea, which was subjected to the criticism of the others. And in this manner, not unlike the passage of a long bill by sections in any legislative body, they proceeded until the whole was completed.

As an instance of the remarkable rapidity with which some of them memorized these mele, as well as showing the estimation in which compositions of the highest class were held, the following incident, related by Mr. Fornander of the visit of Lonoikamakahiki, a Hawaiian chief, to Kakuhihewa, chief of Oahu, will serve.*

“After Lono (name abbreviated from above) had left his royal host in the evening and retired to rest, he got up and went down to the beach to sleep in his canoe, where the cool breeze of the sea would fan and refresh him. While there, another double canoe arrived during the night from Kauai, having on board a chiefess named Ohaikawiliula, bound to Hawaii on a visit. Lono accosted the stranger, inquired the news from Kauai, and in course of conversation learned that a new mele or chant had just been composed in honor of this chiefess’s name; that it was only known to a few of the highest chiefs on Kauai, and had not yet become public. Prompted by curiosity and a natural bent for acquiring all sorts of knowledge, Lono entreated the chiefess to repeat the chant, which she complaisantly did, and Lono’s quick ear and retentive memory soon caught and correctly retained the whole of it.

“His expected sleep on the beach having been thus interrupted, Lono returned to the house and slept soundly till late in the morning.

“Kakuhihewa, having enjoyed an uninterrupted night’s rest, rose early next morning and repaired to the seashore for a bath, according to the custom. He there found the canoe

* Polynesian Race, Vol. II, pp. 118-119.

of the Kauai chiefess just getting ready to leave. Saluting the stranger, he also inquired the latest news from Kauai, and received the same information that Lono had received, of which fact, however, Kakuhihewa was ignorant. Having repeated the chant to Kakuhihewa, and he having committed it to memory, the Kauai chiefess made sail and departed, and Kakuhihewa returned to his palace much pleased with the opportunity of puzzling his guest, when he should awake, with the latest news from Kauai. When Lono finally awoke and made his appearance, Kakuhihewa challenged him to chant the latest mele from Kauai. Without hesitation Lono complied, and recited the chant correctly from beginning to end, to the great discomfiture and perplexity of Kakuhihewa."

The opening lines of this chant are beautifully smooth and musical, and are given here, that the reader may have an idea of the Hawaiian style of composition. The vowels are sounded as in French, and each one is in a separate syllable. In pronunciation the accent should be placed on the penultima. There are exceptions to these rules, but it would be impossible and is unnecessary to give examples here. The lines read:

"O ke alialia liu o Mana,
 Ke uhai la no.
 Ke uhai la ka wai;
 Ke uhai la ka wai a Kamakahou.
 Wai alialia,
 Wai o Mana.
 Mehe kai la ka wai,
 Mehe wai la ke kai;
 Mehe kai la ka wai o Kamakahou."

The English translation is as follows:

"The salt pond of Mana
 Is breaking away.
 Breaking away is the water,
 Breaking away is the water of Kamakahou.
 Salt is the water,
 The water of Mana.
 Like the sea is the water,
 Like water is the sea,
 Like the sea is the water of Kamakahou."

In the above will be noticed the transposition and repetition of lines, which practice is common throughout Polynesia,

and often the effect is quite pleasing. Sometimes one or more words are changed without affecting the sense, as in the following, *nunulu* and *nonolo* being synonymous terms for the chirp of a bird:

"I ka leo o ka manu-a-
E nunulu mai ana-a-
E nonolo mai ana-a."

Translation:

"Heard is the voice of the bird
The twittering from its throat
The warbling from its throat."

Numerous examples like the following might also be furnished:

"The scattered islands are in a row,
Placed evenly from east to west;
Spread evenly is the land in a row," etc.

Words frequently are repeated in a single line, as:

"The rain flies—flies with the wind."

Again with the use of "that" and "this," common in oratory as well as in poetry, occur repetitions such as:

"The altar, the altar of that one,
Hakuhakualani is my father;
The altar, the altar of this one,
Hakuhakualani is my mother."

And the following, alluding to a battle:

"That was a chief, this was a chief—
The stake was the island."

Rhymes, such as

"He henua hiwaoa me Aheetai,
He henua hiwahiwa Aomai."

"A beautiful country far from Aheetai,
A beautiful country is Aomai,"

from a Marquesan poem, are sometimes encountered, but as previously noted, are accidental.

There seems to have been no one who earned the appellation of "The Poet of the Isles," yet there were many famous bards whose *meles* are still held in high repute. The style of composition has remained the same from the earliest times; modern composers imitate but do not excel the ancient; and

except that a few words used in the oldest chants have become obsolete, there has been no change in the poetic dialect.

There is a suddenness or abruptness to Polynesian poetry, both ancient and modern, that causes it to appear broken and jagged in reading, like many of the best-known specimens of Oriental verse. The compositions of all barbarous or savage peoples are similarly sententious and elliptical, but in cantillation this unevenness is materially modified. The oldest chants of the Islanders do not differ greatly in style from the best of the most ancient that have come down to us from Eastern nations.

Their poems are redundant with figures, many of them bold and beautiful. Their composers frequently introduce allegory and metaphor, and similitudes are common. The metaphysical conceptions of some of the older poets are striking, and all possess a strong love for the miraculous. They are frequently luxuriant in description and exhibit touches of true pathos. There is also manifest a love of and intimate acquaintance with nature and natural phenomena, and though graphic in their descriptions where such are personified or compared figuratively with their heroes, yet there has not been found one Hawaiian poem, however short, addressed to the seas that surround them, the volcanic peaks that tower above, the verdurous valleys that nestle between basaltic ridges, the palm that beautifies the beaches, or the stately koa of the forest. (In this regard the compositions of some of the more southern groups are in advance of the Hawaiian.) Nor have they odes to the emotions or passions, although frequent allusion to them, with faithful portrayal, occurs in the meles.

To one unacquainted with the customs and folklore of the Polynesians, many passages in their chants appear ambiguous. And even to many intelligent Hawaiians the meaning is clouded, owing in great measure to what were figures and allegories being accepted literally after the lapse of time. And

although not fully understood by later composers, references to such passages are incorporated into more recent chants and their real meaning thereby hidden. Often these parts which appear obscure on first reading, when understood are the most beautiful. Much confusion arises at times from the names of their heroes. The Hawaiians are given names of objects, events, and physical peculiarities, as is common among most uncivilized peoples. Some of these are odd enough and others are poetic. Noted personages frequently have a number of epithets, and advantage is often taken of this to make a play on words. These are sometimes ironical and sometimes humorous, but usually in praise—and always misleading when not understood.

To appreciate fully the beauties of the mele of the Polynesians, it is necessary to possess some familiarity with their history, mythology, traditions and habits. But the same may be said of the compositions of any other people. What, indeed, would be to the reader the grandest epic in our own tongue without a knowledge of ancient mythology (Hebraic, Grecian and Egyptian) and of prominent personages and events in the history of the world? No poet is more given than Milton to straying from the beaten pathway in search of rare treasures hidden away in secreted nooks; and he is never grander than when he soars away from his theme to make a striking comparison.

Composers of the Hawaiian mele inoas, or name songs, and mele koihonuas, usually laudatory of some chief, have been much given to coupling the names of their heroes with famous men of an earlier day, and the giving of a local habitation to events of a remote antiquity some of which occurred elsewhere. The introduction of such persons and events frequently results in the perpetration of anachronisms mystifying to the most careful student of Polynesian lore.

No less confusing are references to local customs which often are not understood by others than those resident among

the people of whom the composer was one. The lines from a Mangaian lament,

"Slices of Maratua's ears
Announce all new possessions."

sound strangely enough and are without meaning to the reader.

Maratua was the person selected to be sacrificed when peace was declared after a war, and according to custom his ears were severed from the head, the right ear representing the north side of the island of Mangaia, and the left the south side, and these were divided into as many pieces as there were districts for sub-chiefs.

Many such passages are encountered.

Like Homer the Polynesian poets bring the gods from their abodes above or beneath the earth or from the sea to perform, or enable favored personages of this sphere to perform, prodigies in their battles, games, or other contests. Their mythology resembles in some respects that of ancient Greece, and the stories told of their traditionary heroes are not more ridiculous or less entertaining than those of the cultured Athenians.

Proud of their race, its history and their illustrious rulers and legendary characters, and devotedly attached to their island homes, they love to glorify each in their meles, by the recitation of which they are often deeply stirred.

They are children of Nature and chant Nature's language in her own music. As the waves are the amanuenses of the winds and carve their records upon the rocks, so the Polynesians, not less impressionable, have the music of the winds and the tides—as heard on the coral reefs, in the forests and mountain clefts—graved into their souls and give it expression in the songs of their ever-beautiful isles. In listening to their cantillation we hear the roaring of the distant waterfall, the moaning of the winds, the wild rage of the billows, the murmuring of the rivulet—increasing and diminishing in volume, rising and falling, as wafted to us from a distance, and falling again until subdued to a mere breath.

One of the earliest forms of composition was the prayer, and many of such as chanted by the priests have been preserved. The following prayer to Lono, of particular historical value to students of Polynesian religions, is an excellent specimen of one of these ancient Hawaiian offerings:

PRAYER TO LONO.*

"Strangely lofty indeed is this heaven,
This very heaven which separates the seasons of heaven:
Trembling is the lowest point.

* * * * * * *

Extended be the sacred worship of Lono,
Extended through Kahiki and worshiped.

Budding are the leaves of Lono,
Changing is the image of the god,
Changing within Maewa-lani;
Sounded has the shell in Papa-ia-mea.

Silent are the heavens;
The eyes of Lono have been seen by Kahiki;
Extended be the rays of light.
The leaves of Lono are falling,
Doomed is the image of Lono to destruction;
Standing it falls to the foundation of the land;
Bending low is the glory.

Covered is the god by the heaven;
Fastened up is that heaven.
Covered is the god by the shell of the earth.
Squeaking is the voice of the Alae inside of Kanikawi;
Cracking is the voice of the thunder—
Cracking inside of the shining black cloud.

Broken up are the mountain springs from below,
Passed away has the god, he dwells in the clefts;
Gone is the god, he dwells in obscurity;

Passed has the god Lono, he dwells in the mire.
Sounding is the voice of the shell-fish;
Sounding increasingly is the voice of the snails,
Sounding excitingly is the voice of the birds;
Cracking is the voice of the trees in the forest.
Here is your body of a bird, O Lono!
Whirling up is the dust in the sky,
Flying are the eyes of Lono to the altar of Hoomo;

And he dwells here in the land.
Growing is the body high up to heaven;
Passed away are the former blustering winds,
The first-born children of Hinaiaelele.

May I be saved by you, O Lono, my god!
Saved by the supporting prayer!

* Polynesian Race, Vol. II, p. 355.

Saved by the holy water!
Saved by the sacrifice to you, O god!
Here is the sacrifice, an offering of (prayer) words."

Reference has been made to the use of refrains by Polyneesian poets. These were used more often and more methodically in the southern groups than in Hawaii, the subdivision of compositions into stanzas being more perfect there and more common. A number of refrains recurring regularly as the closing lines of successive stanzas, are here given as fair samples from Mangaia:

"Our garments are mourning weeds and flowers"
"Grief fills thy widow as she turns (on her pillow)."
"My wife became a tower of safety."
"My home was where the laurel tree grows."
"Never more will Iva be seen."
"List to the southwest wind awakening."
"Fell the fair palm soaring above all others
At Araata; now the tribe of Teipe mourns."

The last above is from a lament over the death of a chief. And the following refers to the need of a friend's protection, the use of the word "shadow" as here given being common throughout Polynesia:

"O for a rock under whose shadow I might rest."

A leading occupation of the men of all the Pacific Islands was war, and most of their celebrated poems are devoted to the exploits of their heroes and tribesmen, to their principal battles and to the results of their conflicts. It was considered a great honor to be killed in battle. The spirits of those who were not slain in war were supposed to enter the dominions of Miru, or Milu, in netherland. The following lines are from a lament for a Mangaian who did not die a warrior's death, censuring the god Tane in whom, apparently, the deceased had placed his faith:

"Oh, my god, thou hast failed me!
Thou didst promise life.
Thy worshipers were to be as a forest,
To fall only by the axe in battle."

Quite similar are these quotations from Maori laments.*

"If thou hadst fallen in battle on account
Of Rotua, then no lamentation would be made."

"Hadst thou fallen on the battle field
At Tauranga, when Tee Mara and Ihumounga were
discomfited, lo,
It had been well with thee and us;
Thy passage to the grave would then
Have been as smooth as these fine
Mats on which we lie."

A Mangaian poet well explains the unsettled conditions in his own island, and throughout the Pacific archipelagoes as well, in a single line:

"Mangaia ever belongs to the bravest."

And a Hawaiian poet describes with like conciseness the constant dread of war in which the people lived:

"Start not at the rustling of the leaves.
Lookest thou behind thee for a lurking foe?
Ah! how timidly thou turnest around."

The relentless pursuit of the tribe of Teipe after defeat in battle is referred to by a Mangaian poet as follows:

"Teipe is as a defenseless bird, flying hither and thither."

Another composer of the same island, referring to the fickleness of Rongo, the god of war, describes a change of rulers thus:

"Long and peaceful was the rule of Mautara,
Enduring five sacred lustrums.
Like a tall palm was the priestly sway.
His descendants, Potiki
And Ngara, reigned three lustrums apiece;
Then Rongo willed
That those who had been chiefs should be slaves."

A Maori laments as follows the death of one who fell fighting for his land of Moerangi:

"Where are the spears which thou so
Fondly nursed on yesternight?
The garments which were fastened
To thy heart-strings—who loosened those?
Is Moerangi a ship on board of which
Thou sailest to thy death?"

*From the Maori Mementos, by Chas. O. B. Davis, from which other quotations for this review have been made.

A Hawaiian poet tells the result of a battle in the lines:

"The ghosts are crowded together. They are dead,
Flown to the pit of oblivion, to the pit where regret
Cometh not."

* * * *

In the warm southern latitudes where courting was short and fervid, and where brides frequently became such by force, sentiment is not wholly wanting in the chants of the islanders. A homesick and lovesick Mangaian sang:

"Under yon ancient banyan tree
Was I first seen by my lover,
Covered with sweet-scented flowers."

Another poet of the same island in a composition bordering on the Anachreontic, thus praises the charms of women:

"Red necklaces for Mauapa
To win the favor of the fair,
Mixed with leaves of purple hue."

And here is a specimen from Easter Island, in which a maiden avows her love:

"Who is sorrowing? It is Hengu-a-manu Hakopa,
A red branch descended from her father."

* * * *

She has long been yearning after you.
Send your brother as a mediator of love between us."

Glimpses of Oriental splendor are obtained in the following extracts from a very ancient Marquesan chant of the creation:

"And dwelt as kings in the most beautiful places
Supported on thrones, large, many-colored, wondrous."

"Ono is powerful and great,
Atea is adorned with riches changeable and dazzling,
Ono is adorned with princely wealth and power."

Other samples from Hawaii are:

"The breaking light of morn—the sudden flash of light is Leama-noaano."

"The strong blast, the sweeping rain, the smiting wind of winter,
The straight falling rain, the rain without wind,
The rain with wind, as at Kona:
Such is the chief, the gust, the wind of Kona,
The hurricane tearing down villages,
Laying waste the land, the very Kamaniheunonea."

As elsewhere noted the Polynesians are fond of admiring the beauties of nature, and make frequent reference to such

in their songs and longer poems. The following specimens will serve as examples:

From Hawaii—

“Fallen has the wind, it is sleeping—eh—
Resting is the wind, sleeping indeed—eh—.”

“Never quiet, never falling, never sleeping,
Never noisy is the sea of the sacred caves.”

“Lowering were the clouds in the month of Hinaialeele.”

“The mountains are covered with pointed rushing clouds, bearing strong winds.”

From Mangaia—

“I love the fragrance of the flowers
At Aupuru, from fairy women
Arrayed themselves by starlight,
Whilst Ina in the moon looks on.”

“Stood awhile to gaze wistfully
At the glories of the setting sun.”

From the specimens of Polynesian poetical compositions given in this review, necessarily fragmentary, many points of similarity from isolated islands or archipelagoes far removed from one another will be noticed. Expressions strange to other parts of the world, save in adjacent islands and the mainland of Asia whence these people emigrated centuries ago, are common to all portions of Polynesia. Could entire poems be given, the resemblance in style of composition and forms of expression would be seen to be far greater than is shown by the number of brief extracts presented.

In all parts of Polynesia several classes of poems are composed. The solo and chorus was and is common to all sections of the Pacific, but appears to have been more used in the central groups. In this portion of Oceanica more poems were addressed directly to natural objects than in the extreme south or north. In the Fijis, Friendlies, and other groups of the region, dramatic songs have been composed to be produced, after frequent rehearsals, on native fete days, which have represented the surf beating upon the shore in calm and storm, the action of the winds in mildness and in anger, and

other similar plays of the elements. Dramatic poems are known to all parts of Polynesia and in many islands the temper of the elements is represented in connection with some person or event sought to be commemorated, but are not directly portrayed as merely descriptive of elemental changes and disturbances.

More progress appears to have been made with versification in these central islands than elsewhere, so far as known at this time, the division into stanzas often being methodical and the arrangement perfect. Mangaian, in quoting from their poems, often designate the stanzas from which the lines are taken. In other groups the break into verses is marked, as has been previously stated, by the repetition of refrains at certain intervals, and in other ways, the stanzas usually containing as many lines as one can speak or chant at a single respiration. Some of the long poems seem to be thus marked for cantillation. The writer once heard a Hawaiian woman chanting a mele inoa in honor of a chiefess on a public occasion, which appeared to be thus subdivided. She possessed a sweet voice and sang in a low soft monotone. Starting with a full breath the tone would gradually and gently fall away in lessening volume until it became a mere shadow of sound trembling upon the brink of silence. This process was repeated stanza by stanza, breath by breath, until a mele of several hundred lines had been repeated.

In the early part of this article the manner of preservation of the old mele of the southern seas was described, but there was in the Pacific one notable exception, and that was in Easter Island, the inhabitants of which had a written language.

Samples of old poetical compositions from that island given on preceding pages are from incised wooden tablets. The knowledge of this written language dates back to a remote period, and was possessed only by the royal family, the principal chiefs and their sons and by the priests. This knowledge

continued to a recent date, but at present no one is known to possess the ability to read the existing records. The people of the island were from the earliest times, during the reigns of fifty-seven kings, assembled once each year at a particular locality to hear the tablets read, and thus the meaning of some of the inscriptions are known, a few of the natives being able to repeat them verbatim.

The poetry of all branches of the Polynesian race is well worthy the attention of careful students, and the best specimens should be preserved in their original words as well as rendered into English for better preservation. This is particularly true of the older epics, some of which have been shown to possess an antiquity of more than a thousand years, and are valuable historically, notable among which is the Marquesan poem of the creation, a beautiful allegory, from which brief extracts have been made for the purposes of this review.

THE PAN-PACIFIC UNION.

BY WALTER F. FREAR.

THE Hands-around-the-Pacific movement was inaugurated ten years ago at a Pan-Pacific conference held in Honolulu. Its general objects were to further cultivate the spirit of interracial brotherhood which had already become such a notable feature in Hawaii, to develop a similar spirit among all the peoples in and about this greatest of oceans, and generally to promote the welfare of Pacific lands. The live wire of this splendid conception was Alexander Hume Ford, whose energy and enthusiasm have evoked deep interest in it not alone in Hawaii but on the "Coast" and in Australia, New Zealand and the Orient, all of which countries he has visited as a propagandist of the movement.

The Pan-Pacific Union is the outgrowth of the Hands-around-the-Pacific movement. It is an incorporated body, with twenty-one trustees, organized to hold and care for property and to transact business in connection with subsidiary bodies.

It is hoped that in time the trustees will be appointed only by governments of Pacific lands, and that the Pan-Pacific Union will bear much the same relation to such governments that the Pan-American Union bears to the governments of the United States and the Latin-American countries.

The Pan-Pacific Association, affiliated with the Pan-Pacific Union, is an unincorporated organization, membership in which is open to all who sympathize with and are willing to promote the objects of the Pan-Pacific Union. The dues are \$2.50 a year. This entitles the member to receive "The Mid-Pacific Magazine", a monthly, now eight years old.

Briefly, the specific objects of the Pan-Pacific Union, as set forth in its charter, are:—

1. To call in conference delegates from all Pacific peoples for the purpose of discussing and furthering the interest common to Pacific nations.

2. To maintain in Hawaii and other Pacific lands bureaus of information and education concerning matters of interest to the people of the Pacific, and to disseminate to the world information of every kind of progress and opportunity in Pacific lands, and to promote the comfort and interests of all visitors.

3. To aid and assist those in all Pacific communities to better understand each other, and to work together for the furtherance of the best interests of the land of their adoption, and, through them, to spread abroad about the Pacific the friendly spirit of inter-racial co-operation.

4. To assist and to aid the different races in lands of the Pacific to cooperate in local fairs, to raise produce, and to create home manufactured goods.

5. To own real estate, erect buildings needed for housing exhibits; provided and maintained by the respective local committees.

6. To maintain a Pan-Pacific Commercial Museum, and Art Gallery.

7. To create dioramas, gather exhibits, books and other Pan-Pacific material of educational or instructive value.

8. To promote and conduct a Pan-Pacific Exposition of the handicrafts of the Pacific peoples, of their works of art, and scenic dioramas of the most beautiful bits of Pacific lands, or illustrating great Pacific industries.

9. To establish and maintain a permanent college and "clearing house" of information (printed and otherwise) concerning the lands, commerce, peoples, and trade opportunities in countries of the Pacific, creating libraries of commercial knowledge, and training men in this commercial knowledge of Pacific lands.

10. To secure the co-operation and support of Federal and State governments, chambers of commerce, city governments, and of individuals.

11. To enlist for this work of publicity in behalf of Alaska, the Territory of Hawaii, the Philippines, Federal aid and financial support, as well as similar cooperation and support from all Pacific governments.

12. To bring all nations and peoples about the Pacific Ocean into closer friendly and commercial contact and relationship.

The President of the Pan-Pacific Union is the Governor of Hawaii. Its honorary presidents are heads of or high officials in Pacific governments. On the 22nd of last June, the day on which Charles J. McCarthy was inaugurated as Governor of Hawaii, he was inaugurated also as President of the Pan-Pacific Union. This was in the presence of the Secretary of the Interior, Franklin K. Lane, who accepted an honorary presidency of the Union, and was presented by the many Pacific races in Hawaii with flags of their respective Pacific countries to present to President Wilson with the request that the latter accept an honorary presidency of the Union.

In many cities of the Pacific there are Pan-Pacific clubs and these are generally affiliated with the Pan-Pacific Union, although they are independently governed bodies. Many of them celebrate Balboa, or Pan-Pacific, Day, the 17th of September, by holding meetings of representatives of all Pacific races in their respective communities. This celebration was greatly extended this last September in Hawaii. Meetings were held throughout the entire week, called Pan-Pacific week, and many Hawaiian and Pacific problems were the subjects of enlightening discussion.

It is planned to hold a Pan-Pacific conference of the leaders of thought and commerce from Pacific lands in Honolulu

immediately after the war, or perhaps earlier, for a discussion of after-war plans together with the proposed Monroe doctrine for the Pacific.

Honolulu has been selected as the logical center for Pan-Pacific conferences. Here heads of governments and leading business men of Pacific countries often meet and are entertained by the officers of the Pan-Pacific Union.

Plans are in progress to unite with the Mid-Pacific Institute in establishing at the crossroads of the Pacific a Pan-Pacific commercial college, where students from every Pacific land may come and, among men of their own race and of every other race of the Pacific, study the varied business methods, customs, language and history of Pacific peoples. Already there is in course of organization a Junior Pan-Pacific Chamber of Commerce in Honolulu, intended to train young men of the different races growing up in Hawaii to work together for the welfare of the Territory and the Pacific.

As an outgrowth of these aims and of the request of the San Francisco representative of the Federal Shipping Board for information and suggestions looking to the preparation of Hawaii to become the central supply and service station of the Pacific for all lands that border the ocean, a Pan-Pacific Chamber of Commerce committee has recently been created and this has held a conference of representatives of all of the Chambers of Commerce in the Hawaiian Islands, including those of American, Chinese and Japanese citizens, with a view to having all of these chambers work under one Pan-Pacific committee to aid Hawaii in her service of all Pacific lands.

The Pacific governments have been asked to send permanent representatives to Honolulu who will be on the directorate of the Pan-Pacific Union and, it is hoped, fill chairs in the proposed Pan-Pacific commercial college. When the governments and people of this great ocean have really stretched their hands in friendship around the Pacific, Honolulu must naturally be the hub and central clearing house of the movement. Her mission is that of service.

A LITTLE KNOWN ENGINEERING WORK IN HAWAII.

BY J. N. S. WILLIAMS.

THE District of Kohala, Island of Hawaii, is celebrated as the birthplace of the great Kamehameha I, whose ancestral lands and estates were situated at and near Halawa, and whose memory is kept alive in the mind of the passerby when he observes the statue of that powerful king which stands near the government road at Halawa, looking out towards Maui and Oahu, the scenes of his latest conquests.

To those interested in the life and works of the ancient Hawaiians there are few if any districts in this Territory which repay search and investigation better than this same District of Kohala, as it was in the olden days one of the most thickly populated of any. One is impressed with this thought when skirting the shores of the district in the good ship "Mauna Kea" in the daytime, as the innumerable stone wall enclosures of all shapes and sizes indicate very clearly what the density of the population in those parts must have been in the early days in these islands when "might was right and the weakest went to the wall".

Much has been written and said about the heiaus, the paved roads, the ancient ditches, and the burial caves which were constructed and used in the olden days in this country, but few people have even heard of, and fewer still have ever seen the remarkable engineering work situated in this district, which is about to be described.

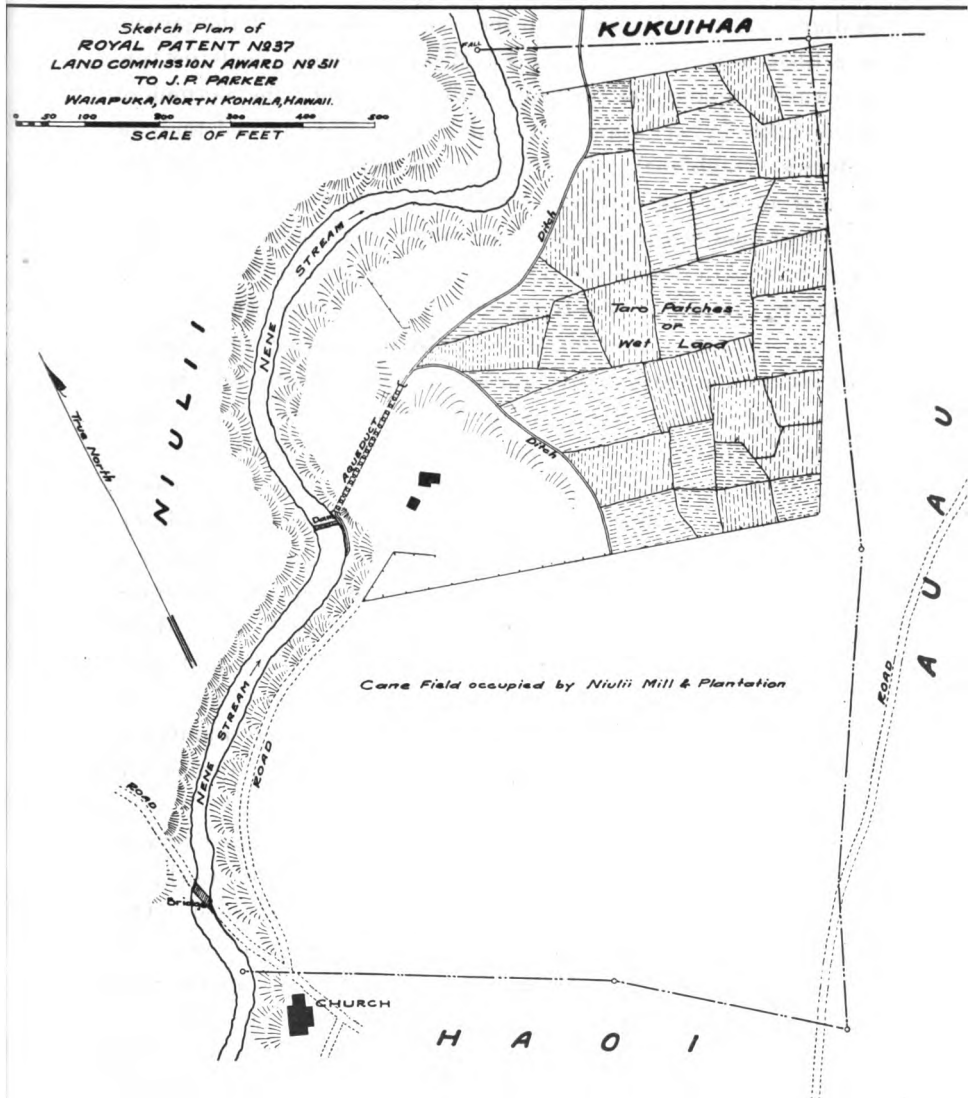
In the land of Waiapuka, now partly in the possession of the estate of Bernice Pauahi Bishop, there is a grant shown on the maps, and known as Royal Patent 37, Land Commission Award 511, to J. P. Parker, having an area of 21.7 acres. This Grant is situated alongside of the Nene stream which forms the Western boundary of the land or Ahupuaa of Waiapuka. This grant is within a short distance on the southernly side of the government road which enters the Pololu

gulch a half-mile or so beyond the Nene stream, to the eastward.

This grant, R. P. 37, contains several acres of taro lands the water for which is brought out from the stream above mentioned in the manner to be described, but before entering upon this description it becomes necessary to explain the contours of this land which are quite unusual. The eastern banks of the Nene stream is composed of a narrow rocky ridge situated within the grant of land to J. P. Parker, which ridge is about twenty feet higher than the bed of the stream itself, and is only about 200 feet wide, the taro lands mentioned within the boundaries of the said grant are in their entirety lower than the bed of the stream itself, so that it is possible by driving a tunnel through the ridge at a suitable point to deliver water from the Nene stream on the taro lands, and this has been done, as shown on the sketch map of the property which was obtained by courtesy of the Territorial Survey Office, and is attached to this paper.

This work consists of a diverting dam constructed in the bed of the Nene stream, very substantially made, with the up-stream side of the dam properly paved so that boulders brought down by freshets might pass over the crest of the dam without causing damage to the dam itself, a side ditch leading from the up-stream side of the dam to the face or entry portal of the tunnel, which at this point has been driven through the rocky ridge mentioned above. The diverting dam and side ditch would not attract any attention from passersby, as such works are to be seen on any sugar plantation, or in connection with rice fields or taro lands, but the construction of the tunnel or aqueduct is so unusual as to immediately raise questions in the mind of the observer as to why such methods were adopted.

The drift through the ridge is only about 200 feet long from entry to discharge, and the depth of the floor of the tunnel below the surface of the ground does not exceed at any point more than twenty feet. From all indications the first work done was the sinking of no less than nineteen wells or



shafts from nine to ten feet apart on a line laid out on the surface of the ground, these shafts or wells are about four feet in diameter, and were sunk to the level of the bed of the stream or a little lower, and after this had been accomplished the tunnel was completed by driving both ways from the bottom of these shafts or wells until they had been all connected and the waterway completed. The material evidence that this was the method adopted in carrying out this work is plainly to be seen on the ground at the present day, and the writer has spent some time in looking over the ground, making measurements and generally examining this remarkable piece of construction.

The reasons which led up to the adoption of this method of construction can be only guessed at at this date, and it may be that the tunnel driver was uncertain as to his levels, or had no means whereby he could assure himself that if he drove the heads from each end of the tunnel he would meet on a reasonable alignment in the middle; or he wanted to make absolutely sure that when the aqueduct was finished water would run through it. Furthermore it is quite possible that as labor must have been very cheaply obtained when this work was carried out, the cost for labor was a secondary consideration, and speed of construction may also have been an object, as it is clear that with nineteen shafts to work in a very much larger number of men could be employed than if the driving of the tunnel had been prosecuted from each end only.

Many enquiries have been made as to who it was that conceived the idea and carried out this very remarkable work, but no thoroughly satisfactory answers have been obtained. One said that according to tradition this waterway had been constructed by the "menehunes" or legendary dwarfs; another was sure that the aqueduct had been driven and put into operation under the orders of Kamehameha the Great; another stated that he had been informed that the tunnel was in existence before Kamehameha's time, so there was nothing for it but to search records, books of travel in the Hawaiian Islands in early days, and other sources of information, in the endeavor

to find some clue which would lead to a reasonable approximation as to the time when this work was done, and as to who did it.

In the Journal of the Rev. William Ellis, an English missionary who made a tour of the islands in the summer of the year 1823, one can read of a visit to the District of Kohala, and of the interview with one of the men-at-arms of Kamehameha the Great, (who had died in 1819, only four years before). This man, full of pride in his deceased leader and king, gave Mr. Ellis many details of the king's life and accomplishments, and showed to the visiting missionary many works and improvements which had been carried out by Kamehameha in early days. It is significant, however, that no mention whatever was made by Mr. Ellis of the engineering work which this paper describes. Mention is made of a Mr. Parker, an American farmer, who cultivated a considerable tract of land, and who lived near Pololu Gulch; from the context, presumably on the Kohala side of the gulch.

The aqueduct or tunnel which has been described is situated on the piece of land which was conveyed to J. P. Parker by King Kamehameha III by deed dated January 1st, 1843, and this conveyance was confirmed after the Mahele (or land division) of 1848, by Royal Patent No. 37, issued in accordance with the Land Commission Award No. 511 to the said Parker. Attached to the original documents on file in the Territorial Land Office which cover the conveyance of this grant of land to Mr. Parker, is a sketch plan of this property with notes of a survey of the same made by T. Metcalf, and on this map is clearly shown the aqueduct in question with certain indications of the method of construction by the sinking of a series of shafts a short distance apart. This then is indisputable proof that this tunnel had been constructed and was in operation when this survey was made, sometime previous to the date of the Land Commission Award on August 10th, 1849.

Inasmuch as Mr. Ellis made no mention of this tunnel in

the published notes of his visit to Kohala in 1823, and as Kamehameha's retainer would undoubtedly have showed this work to Mr. Ellis if the king had in any way been instrumental in its construction, it seems to be a fair inference that the tunnel had not been constructed at the time of Mr. Ellis' visit in 1823.

We can therefore be reasonably sure that this aqueduct was driven and put into operation some time between the years 1823 and 1849.

It also seems to be a fair inference that the Mr. Parker mentioned in Ellis' Journal is the same Parker to whom King Kamehameha conveyed the piece of property described, and that the aqueduct in question was constructed for that same Parker, certainly by Hawaiian labor, as that was the only help available at that time, and since the use of steel tools and blasting powder was known in those days, it seems to be reasonably certain that these implements for piercing rock were used.

In all probability this was the first water tunnel or aqueduct constructed in these islands for the purpose of conveying water from streams for agricultural purposes.

ISLAND YEARNINGS.—A correspondent, nearing the 81st milestone on life's journey, recalls his early life in Hawaii in the following vein:

"Now, in the afterglow, my memory carries me back to shaded pathways in ambrosial woods, lit with the fires of never-ending blooms; I hear again the bird-music ringing through the green rafters of the woodland aisles; I hear again green deeps of the valleys; I look abroad again over the translucent waves of the Pacific from the summit of Haleakala, and see the heavens blue dome in the "gloaming", obscured with the eerie light from the pit of Kilauea; I hear again the thundering of the surf as it rolls over the coral bars, frets its spindrift against the precipitous headlands, or dies away in snow-white foam on the yellow sands of Waikiki."

FORNANDER'S COLLECTION OF HAWAIIAN ANTIQUITIES AND FOLK LORE.

REVIEW BY S. PERCY SMITH, IN *Journal Polynesian Society*,
SEPTEMBER, 1918.

WE HAVE now received the third and last part of this valuable publication issued as "Memoirs, Vol. IV., of the Bernice Pauahi Bishop Museum of Honolulu," Hawaiian Islands, and heartily congratulate that most excellent large, and to Polynesian scholars in particular, this exceptional collection of Polynesian literature.

The three numbers of "Memoirs" form a volume, twelve by ten inches, of 609 pages, with an exhaustive index of fifty-two pages in addition. These traditions were collected by the late Abraham Fornander, of Hawaii, and form the basis of his great work on "The Polynesian Race," 1878. From his position as a judge of the High Court, Fornander was in touch with the most learned of the old Hawaiians, and many of them were persuaded to write down their history, etc., as handed down by their forefathers. These original documents are given in the work before us, expressed in the Hawaiian dialect, with the translation into English on opposite pages. The early part of the work was—we understand—translated and supervised by our late member, W. D. Alexander, LL.D., but the bulk of the work is due to the careful translation of Mr. Thomas G. Thrum, of Honolulu.

The work is illustrated all through by long genealogies, which, to the ordinary reader, possess little interest, but are nevertheless of very great importance, as on them depends the approximate dates of events in the history of the people, for the Polynesians, strange to say, whilst frequently able to name the month and the day—according to their calendar—of any happenings, had no system of chronology other than this. This is a very strange omission in a people that decidedly had the historic instinct; but advanced as they were in many ways

towards a higher civilization, they did not seem to feel the want of dates any more than to be able to say that such and such an event occurred in the time of so and so—and hence the great importance of genealogies.

The traditions embodied in this volume on the origin of the people do not appear to be so full and precise as those of the Maori people of New Zealand. There is in the first *mele*, or song, given in the book, an indication that the current beliefs pointed to the people being, in their minds, autochthones on the Hawaiian islands, in which they resemble the Samoans. And yet there are expressions in this *mele*, and in other parts of their traditions, that decidedly point to migrations to the group. We would suggest to the translator that where he used the name Tahiti, in the fourth line of the *mele* on page two, that, knowing this name to be the equivalent of the Maori Tawhiti (their word of Tahiti), it is probable the name is intended for either Tawhiti-roa or Tawhiti-nui of Maori tradition, which were certainly islands in Indonesia, and not that of Tahiti Island in the Eastern Pacific. It was from the latter island (Tawhiti-nui, which has tentatively been identified with Borneo) that a migration of the Maori branch of the people struck across the ocean until they made land at Ahu, of the Hawaiian Islands, now Oahu. Probably further evidence of this identity of geographical names is to be seen in the *mele* on page 16, where Tahiti-tu and Tahiti-moe are mentioned as the homelands of Wakea (Atea in other dialects) and Papa (the Rangi and Papa of Maori legends), which we suggest are expressions for east and west Tahiti, and thus would correspond with the two Maori Tawhitis, of which Tawhiti-nui laid to the north-east of the other. But this is a subject that would lead us far away from that in hand.

The connection of some of the names in the long genealogical table on pages 24-25, with ancestors of the southern branches of the race, has already been shown in former numbers of this "Journal".

On page 28 is to be found the Hawaiian account of their

first encounter with white people (*haole*), which is embodied in an ancient chant in reference to Kualii (Tu-ariki in Maori form of letters), a former king of Hawaii. It is not clear when this chieftain flourished, but still, evidently long ago. Does this reference to a white race, with a strange language, refer to the visit of the Spanish in the early sixteenth century? Or, as the story says, the strangers were seen in Tahiti, does it refer to the Indonesian Tawhiti alluded to above? There can be no reasonable doubt that the old Hawaiian voyagers were quite capable of reaching Indonesia guided by the knowledge of the route handed down by their ancestors who came from there originally, and here they might have met some of the early Portuguese explorers who were in Indonesia as early as 1509. These *haole* might even have been Chinese, who frequented the Archipelago as early as the first century of the Christian era, if not before. Fornander mentions (Vol. II., page 25) some white foreigners brought to Hawaii by Paumakua. This is probably the same man as Paumatua of New Zealand tradition, a noted voyager who flourished some twenty-five generations ago. However, these are questions surrounded by uncertainties.

The bulk of the traditions are naturally local in color, but no doubt, as is often the case, some have been localized, whilst in reality the events took place in far distant countries before the people settled in Hawaii. For example, the search of Aukelenuiaiku (or, to express his name in Maori form, Auterenui-a-itu) for "The water of life of Kane" (Te Waiora a Tane, in the Maori tradition) is certainly older than the Hawaiian settlement.

We are given in these traditions much relating to the period of the long voyages of the Hawaiians, and here we come across other ancestors of the New Zealand Maoris, particularly in the persons of Olopana and his wife Ru'ukia, who are no doubt identical with Tu-Koropanga and his wife Rukutia, who flourished some twenty-seven generations ago in the Eastern Pacific, according to Maori history. Such identities

of names tend to show the close connection of branches of the race now separated by the width of the Pacific.

There is one thing that causes some surprise in this series of legends, and that is, the absence of the well-known traditions in reference to Kahai (Maori Tawhaki) and of Maui. And yet both ancestors were known to the Hawaiians, for they enter into the genealogical table on page 25; and Mr. Westervelt in his little book, "Maui, the Demi God," has preserved a great deal relating to the latter from Hawaiian sources. Fornander has suggested that Kahai, his father, son and grandson were interpolated on the Hawaiian lines from southern genealogies, and this seems probable from the period in which they appear on the Hawaiian lines.

Altogether the appearance of this series of traditions marks a stage in the history of the Polynesian race to which the future historian must refer for much that is not elsewhere to be found. We congratulate Mr. Thrum on his labors, but wish he had seen his way to separate the "article" from the "noun" in proper names, and to have divided some very long names into their component parts by hyphens. Of course we know he was only following those who originally reduced the language to writing, but some of the names prove very difficult of pronunciation to those not having a knowledge of Polynesian languages.

WAIKIKI BEACH PROJECT.—Public opinion is aroused from time to time at the lessening area available to them of this much-heralded Honolulu attraction, and demands are made that private interests should not bar free access to the sand beach, bathing and surf-riding facilities of Waikiki. The matter is again agitated from both local and tourist standpoints, and is in the hands of a strong committee to devise the way and means of acquiring rights to a large section of beach property to be thrown open to the general public, that the famed recreative attraction prove Honolulu's worthy asset.

MORE PETROGLYPHS

(PUUANAHULU AND HONOKOHAU)

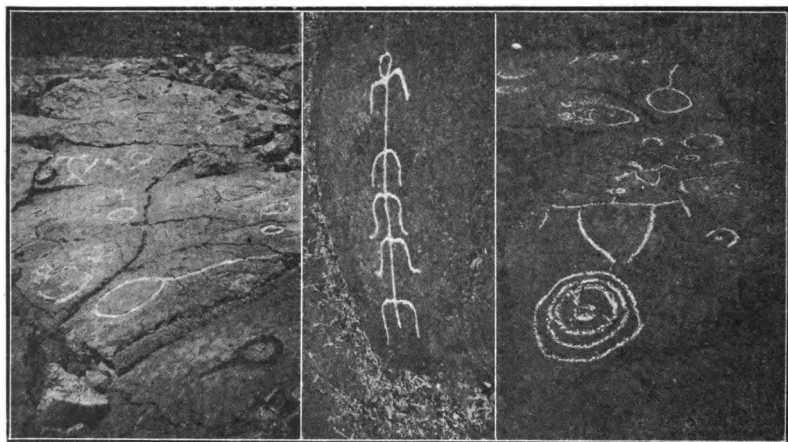
BY ALBERT S. BAKER, M.A., M.D., B.D.

THE writer has long been familiar with the petroglyphs of Kahaluu, Kona, and Naalehu, Kau, so fully described and pictured by Mr. J. F. G. Stokes in No. 4, Vol. IV, of the Bishop Museum Occasional Papers and by Rev. W. D. Westervelt in the HAWAIIAN ANNUAL for 1906. There are also descriptions of other petroglyphs in different parts of the Territory, and references to other observers, in Mr. Stokes' article and in one by Mr. A. F. Judd in the HAWAIIAN ANNUAL for 1904.

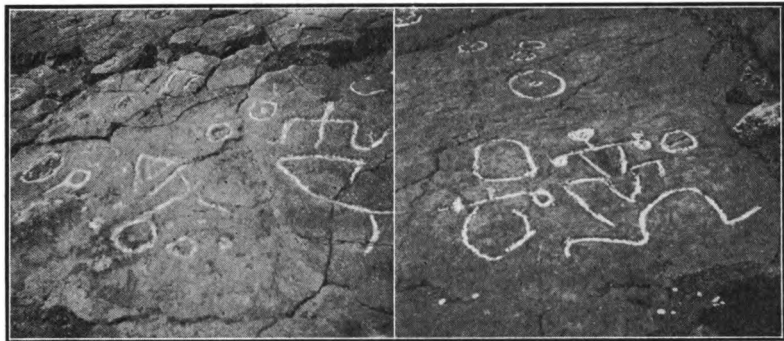
For years rumors of extensive rock writings somewhere at the extreme northern end of Kona have filtered in to me, but only on recently reading in the paper above mentioned, about Mr. Stokes' discovery of a "remarkable sight of a couple of acres of pahoe-hoe closely covered with petroglyphs", on a trail "at Puuanahulu in South Kohala", where it was "isolated by the flow of lava in 1859 and not easy of approach", did I determine to search for it. Mr. Stokes gives eight excellent photographs, considering that he had no chalk for outlining, and noted, in his brief examination, the innumerable forms, and what he calls concentric rings and cup marks, irregularly circular lines for the inclusion or separation of groups, and, on the outskirts, Hawaiian names and initials, sometimes dated.

Proceeding by automobile to Huehue, North Kona, we got an early start in the saddle on what proved to be a forty-mile round-trip horseback journey on trails, a portion of which was over the roughest kind of lava. At one time these trails formed the main thoroughfare around the island, but on this occasion we saw but two living souls on the whole trip, tho we were away from the present main road thirteen hours. Reaching Kiholo in less than three hours, we pushed on toward Kawaihae, thinking that we might find our goal in the section between the flows of 1859, as that was surely "isolated by the flow of 1859", but it was away past both branches of this flow, some six or probably eight miles from Kiholo, and about two miles before the Kohala line. It was here, on some brown or

reddish pahoe-hoe just before a high aa flow, that we saw the first Hawaiian name, strangely enough with the date of my own birth. Soon we saw other names, and, looking inland, beheld the first circles and marks, which proved to cover more, rather than less, than two acres. Mr. Stokes is in error in calling it South Kohala; Puuanahulu, North Kona, being correct. It is on the lower trail, a half mile to a mile back from the shore. It might be reached as easily from the Kawaihae side, judging by the way it looks on the map. I have talked with a number who have been over that trail without seeing the figures, probably because their attention was taken up by the names until they had ridden past the area.

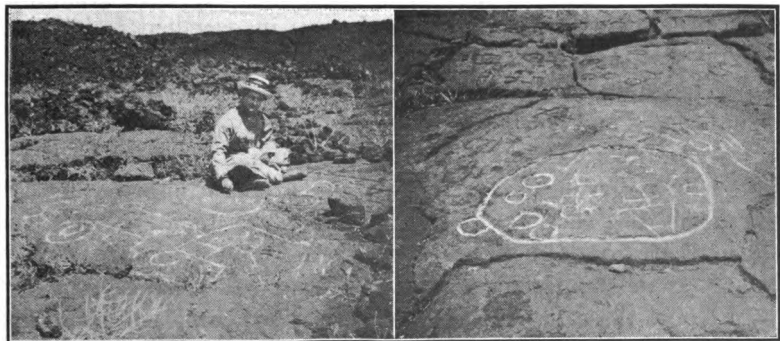


The rock is unusually soft for pahoe-hoe, the horses having cut a path along the trail across it, while elsewhere it is so hard that no impression has been made by all the years of travel, the way being marked by little piles of lava with a piece of coral or a bone to show white in the night. No such variety of lava in form or color has been seen on any other trail, except on the journey to the summit of Mauna Loa. There were also excellent views of all four mountains of Hawaii, and Haleakala, nearly all the way. The heat, however, was terrific; shimmering over the pahoe-hoe, and rising from the sun-soaked reddish lava, until after two hours of leaning over to chalk and photograph the figures, we were dizzy and nauseated.



There are hundreds of circles and thousands of marks of all kinds on this favorite field of ancient Hawaiian records, covering decades of time and perhaps centuries. There are crude human figures similar to those so well known at Kahaluu and elsewhere, animals or fish or birds, circles and circles within circles up to four or five, with or without dots inside and marks alongside, and part circles, figures of all kinds inclosed in large irregular rings which seem to point to a connected history, etc., etc. There seems to be Hawaiian writing from ancient prehistoric times up, and it is a truly remarkable place.

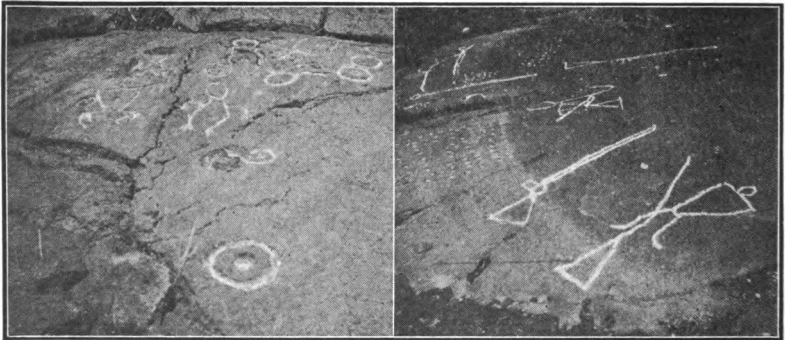
There are a few circles in other places on Hawaii, as Ellis noted, calling them "semicircles or concentric rings" (Ellis' "Tour Through Hawaii", p. 431.). I have often been told that these circles record trips around the island, a second trip putting another circle around the first, etc. The lines near the circles may represent the number in the party, and the charac-



ters included by an inclosing line may give the history of the journey. The illustrations will speak for themselves. It was impossible to get more than a few samples, and not all of these are chalked.

Luckily, just before dark, on the return journey, opposite a small stone-pile and a bit north of it, on the upper side of the trail, between the prominent flows from Hualalai and four or five miles from Kiholo toward Huehue and ten or twelve miles from the others, we saw a few ancient petroglyphs of the Kahaluu type and ten or a dozen circles, up to three concentric ones, and one with two dots inside.

An entirely new group, or rather several groups, of very unusual petroglyphs was found on a recent visit to Honokohau makai, some three or four miles by trail from Kailua. These were found just west of a cement salt-pan, on either side of a



stone fence leading to the sea, and not far east of the heiau at the side of the fish pond. Here were a number of the Kahaluu type of human figures again, and guns in excellent imitation. There were also three konane stones, as there are also three more in front of the village houses, a circle or so, some English letters, and various unknown figures. Again, a stone's throw south of the chapel are a few human figure, one elongated in a very peculiar manner, and a single figure twice as far from the chapel in a line toward the tombs north-east. Then there are also a half dozen guns and a human figure nearly at the tombs, in the same line from the chapel. So far as I know these have never been described, and the guns are

certainly unusual, as well as a peculiar type of what looks something like a tall hat.

The HAWAIIAN ANNUAL for 1915 refers to certain Indian petroglyphs in the States as being so similar to those in Hawaii, that we may have had early Indian visitors, but the Puuanahulu variety add so many forms that it leaves the Hawaiian group distinct in itself, and excludes any probable connection.

Dr. J. Macmillan Brown of New Zealand visited the Kahaluu petroglyphs with the writer in 1918, and expressed an opinion, based on other petroglyphs in the South Sea Islands, that the figures might represent humanized turtles or fish, and have to do with fishing rites, both when on the shore, as at Kahaluu, and when inland. He considered them wholly Hawaiian. While the arms and legs are frequently flipper-like, and some are covered by the tide, yet again, the variety at Puuanahulu excludes this theory also. It is a pity that this interesting mass of ancient picture writing is not more accessible for study by those competent to undertake the task.

KILAUEA VOLCANO DURING 1918.

BY L. W. DE VIS-NORTON,

HAWAIIAN VOLCANO RESEARCH ASSOCIATION.

THE year just closed has been one of extreme interest so far as the great Volcano of Kilauea is concerned, and has seen spectacular changes and the greatest overflows that have occurred within the past forty years. It should be remembered in studying this brief review, that the observed habits of the lava lakes of Kilauea point to a rise to the solstitial period, with a fall at equinox. There is, however, a secondary movement, due to gradual restraint and gradual release of gas pressure, productive of prolonged rising after the equinoctial fall, with a shorter fall before the rise to solstice, while, after the rise to the solstitial period, subsidence may be expected to set in, with a pronounced rise immediately before the regular equinoctial fall. With this in view, it is interesting to have a

brief summary of the behavior of the Kilauea lava column with its summit lakes. The year opened, as in 1917, with a rising lake, the whole of the summits of the great crag masses, or "floating islands", as they are often, erroneously, called, being clearly visible above the rim of the pit. This rise continued, as expected, up to the time of solstice, and was then followed by general sinking, so that, at the end of the month, the lakes were fifty feet below the rim of the pit.

Rising set in again with the coming of February, and, as the month wore on, became extremely rapid and spectacular. The pit presented an extraordinary appearance with the molten lakes only a few feet below its rim, and the crag masses towering fully ninety feet above the spectators. The climax was reached early on the morning of February 23rd, when the lakes overflowed vigorously, and in a few moments had destroyed the automobile road and terminal, together with the trails across the main crater floor generally used by visitors. The overflows continued, amid scenes of unparalleled excitement, for some three days, but by March 8th subsidence had again set in and the lakes had fallen to a level of about 40 feet below the rim of the pit.

Thereafter, and until the equinox, there was the usual steady rising, followed at the equinoctial period by sharp subsidence to 50 feet below the rim, and continuing until April 12th when recovery set in, slowly at first, but changing to strong rising by the end of the month, and continuing, with periods of slight fluctuation until nearly the close of May, when slow sinking commenced, until June 20th, followed by the expected sharp rise to the solstice.

July opened with a rising tendency, but the conditions soon became stationary and remained so until August 10th, when an extraordinarily rapid rise commenced, lasting for six days, the lake being less than 25 feet below the pit rim when measured on the 23rd of the month.

Throughout September there was a remarkable steadiness of the lakes with a very slight tendency towards sinking, but

rising again commenced slowly in October, and by the middle of November had reached an apparently temporary culmination in the outbreak of streams of lava through the floor of the main crater at varying distances from the pit, a most unusual occurrence. On the 15th of the month, however, a gigantic subsidence to a depth of 200 feet took place with spectacular red-hot avalanches. Thereafter a steady period ensued with the likelihood of the year closing with a rising lake, and every possibility of heavy overflows occurring in the early part of 1919. The behavior of the lava column has served to strikingly verify the conclusions arrived at during several years of close study, and forms a most valuable index for future work at the Hawaiian Volcano Observatory.

ALASKA-HAWAII CRATERS

THE February, 1918, issue of the National Geographic Magazine, in its account of the Katmai Expedition's explorations of the "Valley of Ten Thousand Smokes," gives the dimensions of the Katmai Crater, Alaska, which erupted June 12, 1912, as follows:

Circumference of crater.....	8.4 miles
Width of crater rim.....	3.0 "
Area	4.6 "
Greatest depth.....	3700 feet

Our active volcano, Kilauea, therefore may be eclipsed in magnitude of area, as claimed, but not so the convenience and safety to observers, who may approach even to the brink of Pele's everlasting fires. But since Katmai has settled down to her smoking task it would seem more appropriate to make comparison with the crater of Haleakala.

COMPARATIVE CRATER FIGURES.

	Katmai.	Haleakala	Kilauea
Circumference.....	8.4 miles	20 miles	7.85 miles
Extreme width...	3.0 "	2.37 "	1.95 "
Extreme length....	.....	7.48 "	2.93 "
Area.....	4.6 "	19 sq. miles	4.14 sq. miles
Greatest depth...	3700 feet	2652 feet	500 feet

OUR RED CROSS WORK

CONTINUING the record of Hawaii's Red Cross activities, as given authoritatively in last ANNUAL, the following figures and particulars to September 30, 1918, are condensed from the various reports at the recent annual meeting of the organization:

President E. D. Tenney, dealing with its activities, showed that for the period up to July 1st the American Red Cross through its various chapters had produced and sent forward in fifteen shipments:

Refugee garments.....	490,120
Hospital supplies.....	7,123,621
Hospital garments.....	10,786,489
Knitted articles.....	10,134,501
Surgical dressings.....	192,748,107

A total of 221,282,838 articles, of an estimated value of \$123,320.90, largely the output of women's hands. Of similar work since produced, an initial shipment of 472,710 articles to Siberia was made September 14th, which comprised 444,430 Surgical dressings, 18,899 Hospital garments and supplies, 8,683 Knitted articles, 442 Baby layettes and 286 pieces warm clothing.

The Red Cross now has active operating commissions in France, in England, in Italy, in Belgium, in Switzerland, in Palestine and in Greece. It has sent a shipload of relief supplies and a group of devoted workers to Northern Russia; it has dispatched a commission to work behind our armies in Siberia; it has sent special representatives to Denmark, Siberia, and the island of Madeira. It has thus extended relief to the armies and navies of our Allies, and is carrying a practical message of hope and relief to the friendly peoples of afflicted Europe and Asia.

Judge Whitney, chairman of the Civilian Relief division, reported its organization and methods of work by its various committees on all the main islands of the group. This branch of relief work came into being in the early part of this year,

and while impossible to tell the exact number of families served or visits made, it is estimated that from four hundred and fifty to five hundred families per month are visited throughout the islands.

Miss Beatrice Castle, supervisor of women's work for the Red Cross, reported on the local activities on the various islands as follows:

Owing to the fact that war relief work was already established in Hawaii before America's entrance into the war, the relief committee merged into the Red Cross Auxiliary in September, 1917, and the auxiliary became a part of the Hawaiian Chapter early in 1918. This auxiliary on Oahu shipped 159 cases of supplies before the end of December, 1917.

The department of women's work is divided into four sections—first, surgical dressings department; second, hospital supply department; third, knitting department; fourth, refugee department.

Each one of the Islands has worked valiantly in these lines.

An inspection tour of Red Cross activities was made to all of the islands by the supervisor of women's work. Everywhere—in the principal towns, on the plantations, in country districts—profound interest was shown in the Red Cross. All nationalities mingled in the great cause of humanity.

On Maui this work is carried on in seven main districts under the able direction of Mrs. F. F. Baldwin, and a very creditable record has been made. The headquarters of the Hawaii branch at Hilo is under Miss Ivy Richardson's supervision. Work is distributed to willing and capable aids in the various districts, which is executed with entire good will by all nationalities, so that regular monthly shipments come to headquarters each month. Kauai work circles the "garden island", the eastern section in seven divisions, of which Mrs. Chas. Rice is director, and the western section of four divisions under Mrs. Eric Knudsen. Under their enthusiastic leadership a splendid showing has been made.

Oahu, with its many women, Hawaiians, Chinese, Japanese,

British, French, American and still other nationalities, wearing the emblem of the Red Cross, has sent its share of surgical dressings and garments to the soldiers and refugees.

Twenty-one hospital supply units sew unfailingly and cheerfully. Thirteen surgical dressings units fold gauze and make muslin bandages; hundreds of women knit; layettes are forwarded to the babies in Europe.

The Throne Room and hospital supply department are constantly filled with women who are giving their time and strength and sympathy to the work. In the Territory of Hawaii the spirit of the Red Cross has touched all nationalities. The Hawaiian Chapter, under the jurisdiction of the 14th Division, works not only for the soldiers "over there" but for a closer understanding of all peoples.

Since June 30 many knitting units have been organized, as also new units in the other departments, whereby the work in general has increased.

The second war fund drive was for a grand total of \$100,000,000.00 and the quota allotted Hawaii was \$250,000. In addition to this amount our Chapter needed locally, according to estimates arrived at by Mr. G. R. Carter, then chairman, approximately \$160,000, thus making the total amount required \$410,000 for the year ending December 31, 1918. The splendid results of the drive hardly need comment or repetition here. It was ushered in by what was, beyond question, the most inspiring parade that ever passed along our streets; the thousands of faithful women workers clad in their Red Cross uniforms presented a spectacle that can never be forgotten. This parade drove home to the hearts of everyone who witnessed it, and spread throughout the Territory, the merciful message of the Red Cross.

The sum of \$677,265.82 was realized as a result of the drive, thus oversubscribing the required amount by \$267,265.82. Seventy-five per cent. of the amount realized at the drive, as also of dues collected, goes to the Department in Washington.

The number of pledges and amounts from the various islands was as follows:

	Number Subscribers	Amount
Maui	14,322	\$ 75,089.22
Molokai	437	1,418.15
Kauai	13,720	85,516.55
Hawaii	19,087	88,061.37
Oahu	61,419	427,180.53
Total.....	108,985	\$677,265.82

OFFICERS 1918-19.

President.....	E. D. Tenney
Vice-President.....	H. L. Ross, Hilo
Treasurer.....	R. A. Cooke
Assistant Treasurer.....	H. G. Winkley
Secretary.....	H. R. Macfarlane
Chairman Civilian Relief.....	W. L. Whitney
Instructor of Classes.....	Mrs. G. P. Wilder
Supervisor of Women's Work, A. R. C., Territory of Hawaii.....	Miss B. Castle

RETROSPECT FOR 1918.

SUMMARIZED CONDITIONS.

HAWAII has had, probably, the most strenuous year of her existence, due largely to the war conditions as experienced elsewhere. The demands upon the time, talent and wealth of her citizens in patriotic, humanitarian, and philanthropic lines have been continuous, yet the campaigns have been met with a liberal response, as will be shown under their respective heads.

The calling into service of our militia; the drafting of those eligible for war purposes, first from 21 to 31 years of age, and subsequent registration for draft under the "Man Power Act" from 18 to 45, has naturally affected all industries and business interests throughout the territory. What with a labor shortage, the sugar, rice, pineapple and coffee growers have been and are seriously handicapped, and only under great pressure were shipping facilities afforded Hawaii to relieve overcrowded warehouses to forward their products to a waiting market.

Passenger movements have also been hampered in both arrivals and departures, not only in lack of accommodation but by conflicting and contradictory reported requirements of passport or travel permits, so that the tourist traffic has been virtually suspended. In years to come researchers will note the absence in our papers of marine intelligence, so essential in a sea-port. There will be difficulty in checking up arrivals and departures of vessels, or of passengers. This worked a hardship on an isolated community in the "Cross-roads of the Pacific" while the official ban was on, as a necessity of the war.

Another war condition imposed, affecting every hostelry and household, is the "Hooverizing" of all food and other products, a measure which is being lived up to quite generally, with few lapses, so far, and these less from willfulness than otherwise.

POLITICAL.

The gathering together of delegates to the nominating conventions owing to war conditions lacked much of the political excitement or enthusiasm of former years, attendance being largely by proxy, and the local planks of the party platforms varied so little as to furnish the excuse that each had stolen the other's thunder.

The spice of this year's campaign was the entry of Dr. Jas. H. Raymond, of Maui, to contest with L. L. McCandless in his aspiration as delegate to Congress in opposition to Kuhio, the Republican stalwart, but, contrary to general expectation, he fell short of the nomination.

At the primaries, for senators and representatives for the coming legislature for Oahu there were ten candidates for the three senate vacancies and 43 aspirants for the twelve seats in the lower house. The other islands doubtless had a like experience.

At the general election, November 5th, the returns showed a sweeping Republican victory on all the islands save Oahu, which gave five seats in the lower house to the Democrats. In the race for delegateship, Kuhio again won over McCandless, the total vote being: Kuhio, 7548; McCandless, 6131.

LEGISLATIVE.

A special legislative session was convened May 14th called to provide funds for Hawaii to repair her storm damages. The session held fifteen days, at an expense of \$18,000; it passed a few timely measures and tabled a number of foolish ones submitted under the guise of patriotism.

The political complexion of the coming legislature is as follows: Senate, all Republican; House, twenty-four Republicans and six Democrats; their names appear in the Registrar and Directory division for their several islands.

CARNIVAL SEASON.

Carnival period, February 21-23, this year, was what was termed a "home affair" compared with former efforts, and for various good and valid reasons, viz., it was war time, which was not conducive to the carnival spirit; Red Cross and other demands on the time and purse of the community was felt, and the withdrawal and uncertainty of steamers had stifled passenger traffic and brought the tourist business practically to a close. Notwithstanding, Washington's birthday was fittingly observed by the largest military parade yet seen here. This was preceded by open-air dance festivities the evening before at the Executive grounds. A children's song pageant at the Punahou campus by pupils of the public schools, the first day, was a successful event, as was also the hibiscus exhibit on the closing day.

KAMEHAMEHA DAY.

Kamehameha Day memorial exercises were held Sunday, the 9th, at Kawaiahao church as usual, in which the various Hawaiian Societies participated. Prince Kalaniana'ole gave the address and outlined the importance of next year's observance which will mark the hundredth anniversary of Kamehameha's death, and the introduction of christian civilization.

The day itself, the 11th, was merged into the Fair attractions, after the customary morning parade and decoration of the Kamehameha statue, a summarized account of which appears elsewhere.

NOTED VISITORS.

Prince Arthur of Connaught and party, en route on a special mission to Japan, passed through here June 7th and was duly honored in his brief stay and enjoyment of his tour of sightseeing.

Hon. Franklin K. Lane, secretary of the interior and party, arrived for a close observation and investigation of various Hawaiian problems, notably land and homestead matters, which took him through the group in his first-hand inquiries. Hawaii will benefit from such official acquaintanceship. Before departure he participated in the inauguration of Governor Chas. J. McCarthy and took part in the opening exercises of the Fair.

Gen. Paul Gerard Pau, head of the French mission to Australia, and party, made a day's stay in Honolulu, August 26th, en route for the Colonies, during which he toured the city and enjoyed the courtesies extended, for which he has since returned a note of appreciation.

Sir Joseph Ward, premier of Australia, and Hon. W. H. Massey, premier of New Zealand, as also Sir Paul Chater, of Hongkong, from their brief calls here on their missions to and fro, are appreciative co-workers in the Pan-Pacific movement. Besides these there have been a number of educational, commercial, and other representative bodies, including journalists, passing through who improved their opportunity for a better acquaintance with Hawaii.

Another distinguished visitor was Prince Lvoff, who passed through from Russia and Siberia, en route to Washington, in the interests of his stricken country.

OFFICIAL CHANGES.

Hon. Chas. J. McCarthy, territorial treasurer, was the chosen one of several aspirants to succeed Lucius E. Pinkham as Governor of Hawaii, and was sworn in by Chief Justice Coke, June 22d, which occasion was distinguished by the presence and participation of secretary of the interior Franklin K. Lane. Several cabinet changes naturally followed.

Mr. D. E. Metzger was appointed to succeed as treasurer,

and L. H. Bigelow succeeds W. R. Hobby as superintendent of public works.

Attorney-general I. M. Stainback having joined the army has been succeeded by Harry Irwin.

Hon. Jas. L. Coke was promoted to the chief justiceship early in the year to succeed Hon. A. G. M. Robertson, resigned. S. S. Paxson was appointed to succeed Dr. J. S. B. Pratt as president of the board of health.

WEATHER.

Last winter's rain throughout the group was general and above normal from about the middle of November. More thunder storms prevailed during this period than usual. Strong N. E. winds carried through January with frequent rains, while February is recorded as stormy, especially so on Maui and Hawaii on two occasions, with much rain whereby they materially recovered the ill-effects of last summer's drought. Heavy rains fell March 11-12, 16 and 25, being more severe on the southern islands and causing much damage. A like experience is the record for April, with several bridges carried away on windward Oahu and in the Kohala district of Hawaii. These months, furthermore, were cooler than usual.

Our summer rains, conveniently mostly night showers, were above the normal for each month on nearly all the islands, with warm weather holding off till the latter part of August, since which time the agricultural and pastoral sections are feeling the dry spell with the temperature above normal. All in all it has been a year of favorable weather.

FIRST INTER-ISLAND FLIGHT.

Following a series of successful flights around Oahu, as also to Molokai and return March 15th, Major Harold M. Clark of the Aero Squadron of Fort Kamehameha, accompanied by Sergt. Robt. P. Gray, set out at 9:15 a. m. May 9th for a sea-plane flight for Hilo, via Maui. Landing at Kahului about noon, then flying around the base of Haleakala by way of Ulupalakua at about 8000 feet elevation he struck

across the channel for Hawaii, where he met with dense cloud-banks and fog, forcing a change of course over the island whereby he became lost, and landed late at night in the tree-tops of the upper Kaiwiki forest, Hilo.

Much anxiety was felt at their non-arrival, and search parties set out from various points to find them and render aid. Two days passed without a trace of the lost men or their machine, when they emerged from the woods above the Kaiwiki homesteads to run into a body of searchers, having left their damaged plane and picked their way through dense jungle and down cliffs and streams, and without food or sleep the whole way. Word of their safety reached Hilo about 3 p. m. May 11th, and was quickly wirelessly to this city to the great relief not only of their military companions but the entire community.

SHIPPING MISHAPS.

The T. K. K. freighter *Shinyo Maru II* arrived off port January 5th with cargo afire since morning of the 2d, convoyed by a U. S. transport, which had picked up her S.O.S. message and went to her aid. The fire which had gained rapid headway, was under control on arrival and by the 7th was quite extinguished. On examination, her cargo of cotton rags and caustic soda had suffered much damage.

Br. stmr. *Coolgardie*, from Newcastle for San Francisco with coal, making port February 9th too late to enter, ran on the reef Ewardwards of the harbor entrance. Several tugs went to her aid and got her off during the night, with some damage which necessitated dry-dock repairs.

Schr. *Albert Meyers* broke from her moorings at Kahului in mid-March and drifted on the beach, but with the aid of the tug came off with but damaged keel and rudder, for repairs of which she came to this port.

Schr. *Caroline*, lumber-laden, anchoring at entrance of the harbor May 26th, dragged her anchors and struck heavily on the reef for several hours. Prompt aid rescued her, but at the

loss of much of the keel, as was learned on docking for repairs.

Thirteen survivors, including the wife and two children of the Captain of Schr. *Annie Larsen*, which left Port Allen, Kauai, April 2d, for Tahiti to load copra, were brought to this port the latter part of August, the vessel having been wrecked on Malden Island in the South Seas, and where they and the wrecked crews of Schr. *Baxter* and bark *John Murray* were some two months before being rescued.

Schr. *Ysabel May*, H. Jones master, was wrecked on Christmas Island, August 1st. The Captain and three men reached Fanning Island a week later in a small open boat for succor of his remaining crew. The *Ysabel May*, a three-masted schr. of 135 tons, left this port July for the island of her doom to load copra for San Francisco.

Stmr. *Santa Cruz* on entering this port October 20th, struck on the Waikiki side of the channel. By the aid of tugs, after some four hours' effort, she was floated off without material damage.

Captain O. Borrison and four of his men, survivors of ship *Dumaru*, destroyed by lightning October 16th, shortly after leaving Guam for Manila, were rescued from their improvised raft after several days' drift and exposure by a passing vessel and brought to this port November 7th. Forty-one other members of the crew left in two boats, both of which have reached safety.

HAWAII A DRY ZONE.

At least for a season, and it is hoped for good, the territory is enjoying the long-sought-for blessing and benefits of prohibition. As a war measure President Wilson signed an executive order March 4th, making Oahu a dry zone, effective April 10th. Subsequently full prohibition for the territory was obtained by Act of Congress which went into effect August 20th, for the duration of the war and a limited period thereafter, when a local plebiscite on the question will decide for or against the boon having come to stay.

FINANCIAL CAMPAIGNS.

The W. S. S. campaign organized with receipt of the first supply of war saving stamps early in the year, Hawaii's quota for the purchase of this class of baby bonds was placed at \$20 per capita, to realize the sum of \$4,500,000, subsequently reduced to \$2,000,000. A drive in its interest opened May 18th with a parade of the children of public and private schools, some 7000 in number, all flag bearers, and each one a stamp investor. They marched from Aala Park to the Executive grounds, where musical exercises and addresses were given. Floats and band music helped the inspiring scene. This campaign will close with the year. At the end of October the sales amounted to \$1,149,503.27. Dec. 2d, a supplementary drive was entered upon to attain our quota.

The second Red Cross drive opened May 6th with a parade demonstration of its army of workers to secure Hawaii's quota of \$410,000. The sum of \$677,265.82 was realized. This was followed a little later by a Salvation Army campaign in aid of its war work to secure \$200,000 as our proportional share.

The Belgian Relief work is still meeting with response to its quiet appeals. A recent published report showed that over \$30,000 had been forwarded since the start of its plea for aid. The Harry Lauder fund secured \$5,353, mainly from "brither Scots" throughout the islands, to whom the call for this war aid came.

The third Liberty loan campaign opened here April 5th, Hawaii's quota of which was \$3,610,317. After a very strenuous week throughout the islands 17,104 subscribers were entered here for \$4,809,000, exceeding our quota \$1,198,683. Official figures on the Coast credit us with 693 more subscribers for \$10,850 additional, probably subscriptions from here through Washington.

The fourth loan campaign to raise our quota of \$6,765,000 was entered upon September 20 and closed October 19th with an over-subscription of \$1,297,650. By islands, the subscrib-

ers and amount of their subscriptions in these two campaigns are as follows:

Islands:	<i>Third Loan</i>		<i>Fourth Loan</i>	
	Subrs.	Amount	Subrs.	Amount
Oahu -----	11,424	\$4,031,200	17,824	\$6,291,300
Hawaii -----	659	259,700	1,600	729,300
Maui -----	1,824	235,150	3,549	588,050
Kauai -----	3,197	282,950	2,066	454,000
Total -----	17,104	\$4,809,000	25,039	\$8,062,650
Quota -----		3,610,317		6,765,000
Oversubscriptions -----		\$1,198,683		\$1,297,650

The latest financial call was in aid of United War Work for the benefit of the Y. M. and Y. W. C. A., National War Council, War Camp Community Service, Jewish Welfare Board, Salvation Army, and American Library Association, to secure our quota placed at \$215,000. This held from November 11 to 20, closing with a realization of \$327,780.58, exceeding our quota over 50%.

Still another appeal is presented, in behalf of the "Fatherless children of France," the week's campaign therefor closing Nov. 30th with over \$15,000 realized.

RED CROSS ACTIVITIES.

The intensity of the activities of the American Red Cross organization, as was shown in our last issue, have been pursued throughout this year with increased vigor among all the units of the various islands. Several urgent calls have been received for special supplies from time to time, to all of which the noble band of self-sacrificing women bent their responsive energies and in due time, in each case, shipped forward the required supplies, supplementary to the regular staple routine activities. The work of the Red Cross has again outgrown its headquarter's capacity (the former throne-room of the executive building), and they have moved into the spacious premises of the University Club, kindly assigned them for their charitable labors. A summary of the year's activities appears elsewhere in this issue.

FIRES.

Fires have been fortunately few and far between since our last issue, the more notable being as follows: A fierce blaze occurred in the Union Bakery, Wolter's block, Dec. 14, 1917, which was fortunately got under in time. Chief Thurston and five of his men were badly hurt in their labors thereat.

March 17, 1918, fire from supposed spontaneous combustion broke out in the store of Hall & Son, Ltd., corner of King and Fort streets, doing damage to the amount of some \$7,000, covered by insurance.

Love's Bakery, on Nuuanu street, sustained considerable damage to machinery and stock in a night fire July 17th, supposed to have caught from the furnaces, causing a brief interruption to business.

One of the Royal Grove cottages, with its fine furnishings, was lost by fire May 1st, the adjoining homes narrowly escaping like fate. The property was insured for \$5,000. A dwelling in the McInerny tract with its furnishings was also entirely consumed, during summer, on which was a total insurance of \$2,200.

The grocery store and dwelling, corner of Kinau and Lunalilo streets, was badly damaged by fire August 5th; covered by insurance.

Hilo has been equipped this year with a Seagreve Centrifugal Fire engine, the first of these efficient agents for the big island's safety.

REAL ESTATE.

Activity in real estate has not been pronounced, as a rule, though a number of transactions of magnitude are recorded, among which may be mentioned the following:

The Mormon colony of Laie have secured the Koolau property of the late Jas. B. Castle, covering the cane planting, railroad, and water-right interests in the Koolau Development Co.

J. D. Spreckels is said to have purchased a 750-acre tract of land at Kilauea, Kauai, at \$33,000, part of the property being under cultivation.

Business property, corner of King and Smith streets, some 13,000 square feet, sold to a Chinese firm for \$65,000. The Irwin block, Ewa side of Nuuanu street, below King, has been purchased by Robt. Horner for the sum of \$42,000. Davies & Co. secures the Hendrick property, corner of Merchant and Alapai streets, whereby they obtain title to the entire block.

The federal government secures Ford Island for additional military purposes in Pearl Harbor, comprising 334 acres, for \$170,250.

The California Packing Association acquires a tract at Iwilei, below the old prison, purchasing the interests of two parties therein for \$80,000.

A residence section on School and Nuuanu, comprising 36 lots and cottages, changed hands to the Chinese Investment Co. at \$50,000. The Susanna Wesley Home, King street, has been bought for \$8,500 to be subdivided into cottage lots.

In Manoa, upper Nuuanu and other suburban sections, a number of transfers of homes are reported.

BUILDING NOTES.

The conditions handicapping all building enterprise, as mentioned in our last issue, have been more seriously felt throughout this year, and is marked by the absence of any new work of magnitude being entered upon. Nevertheless, there has been much done in suburban and cottage home building, of moderate class, besides the activities of alterations and repairs inevitable for the city's up-keep.

The various structures in progress at our last report finished in due course, save a few, and adds to the city's service and attractiveness. The new power-house of the Hawaiian Electric Co. is progressing in spite of difficulties met with in its foundation requirements, and its rising walls will soon show the magnitude of this enterprise. The only new business structure of note is the office building in stone and concrete of the Bishop Estate, on Kaahumanu street, though there are a number yet in abeyance.

The Honolulu Preserving Co. are extending their plant

by the addition of three new structures in the Iwilei district, at a cost of \$13,700. In school buildings is noted the addition of a new two-story concrete and frame addition to the Normal school at a cost of \$29,995, having six rooms on each floor, affording space for 500 pupils. This was completed in time for the fall opening. A large addition has also been made to the Kauluwela school building, costing some \$27,600.

The movement to overcome the tenement evil is resulting in the erection of many small cottage homes to take the place of crowded unsanitary structures.

Hangars for the equipment of Ford Island aviation station, for which purpose this property was secured, are already completed.

PUBLIC IMPROVEMENTS.

The concrete pier work at the corner of the Esplanade is finished and awaits the planned sheds in keeping therewith. In conformity with this is the re-construction of the Naval wharf, now in progress.

Bishop street extension has been carried through and paved from King street to Allen street, at the water front. Kalakaua Avenue and Diamond Head road to the Light-house are greatly improved and concreted. Work on the reclamation of the Waikiki marsh lands is said to be in the near future.

Lahaina is to be aided by the improvement of its landing, blasting of its reef to modify its difficulty and danger being under way. At Hana a new and concrete wharf and landing is in progress, to take the place of the old storm-wrecked structure. The new wharf is to be 250 x 42 feet and will cost \$75,000.

The Hilo breakwater is growing apace, with promise of completion of its 600-foot extension by the close of the year.

BUSINESS CHANGES.

In business circles the important change of the year has been the disposal and reorganization of the old-established house of H. Hackfeld & Co. and its interests, under the alien

enemy act, and becoming a full-fledged American-owned and controlled concern, incorporated as the American Factors Co. through the custodian of alien property. Under the same reorganization its branch, B. F. Ehlers & Co., becomes the Liberty House.

The Mutual Telephone Co. of this city secures control of the Maui Telephone Co. on the basis of exchange of shares; the transfer is said to represent a value of \$85,000. Following federal control of the Wireless, the Telephone service also comes under its jurisdiction.

The Union Grill closes its doors owing to the war, after a twenty years' existence. Waikiki Inn, or Heinie's Tavern, has gone under the auctioneer's hammer, piecemeal, and bankruptcy proceedings has closed the Wailuku Grand Hotel.

Fernandez & Correa have bought out Whitney & Marsh interests and merged the two dry goods concerns.

Asano interests of Tokio are reported to have purchased control of the Pacific (Japanese) Bank, Ltd., of this city.

Following the Pacific Mail's severance of connection with Hackfeld & Co. last year, the T. K. K. Steamship Co. have opened a local office here in the former Promotion Committee rooms of the Young Hotel, in place of its late agency with Castle & Cooke.

Oahu Ice Co. have purchased the property and good-will of its rival, the Barnhart Ice Co.

PINEAPPLE INTERESTS MERGING.

The following changes have occurred in the Pineapple Companies since our comprehensive table in last issue:

The Hawaiian Islands Packing Co. was absorbed by the Hawaii Preserving Co. in 1917 and the latter absorbed and dissolved by the California Packing Corporation in 1918. A. W. Eames is manager of their Hawaiian interests.

The Maui Pineapple Co. and the Haiku Fruit & Packing Co. have consolidated (1918) under the name of the latter company. Harold W. Rice is manager, A. F. Tavares secretary, and W. A. Baldwin superintendent of field work.

The Thomas Pineapple Co. has been absorbed by Libby, McNeill & Libby, Chicago, but retain the old name. They are represented here by C. H. Medcalf manager.

GREATER HONOLULU.

A movement looking to the material enlargement of Honolulu harbor and increase of its wharfage facilities is having serious consideration. Plans and specifications have been sent to Washington of our possibilities on that line, calling for an estimated expenditure of some \$9,000,000 to meet the preparedness demand on this Cross-roads port of the Pacific confidently looked for in the near future by the rapid expansion of the merchant marine in this ocean. Public attention to this situation was drawn by a request of the director of the shipping board that Honolulu harbor be set in shape for the prospective commerce expansion following the war.

In keeping with the above movement, which is but a development of former enlargement projects presented, is the revival of the free port idea, which has gained many adherents since Prof. W. A. Bryan's paper thereon in the HAWAIIAN ANNUAL for 1913. A recent address by him on the subject as applied to Hawaii, before the Commercial Club, has been circulated by the Chamber of Commerce to elicit various view-points on the important question.

PEACE.

Among the last, but most important in this record of events for 1918, comes the glorious news of victory for the Allies and the end of the war by the entire submission of Germany to the armistice terms for cessation of hostilities, as had Austria, Turkey and Bulgaria each done before her, virtually an unconditional surrender, followed by the abdication of Kaiser Wilhelm and his flight to Holland.

Sunday night, Nov. 10th, was made joyous on receipt of the glad tidings all through the city, the streets quickly filling with hearts eager to voice their thankfulness. Monday impromptu groups gathered and hasty arrangements for parade

made, for which a half-holiday was declared, but wet weather interfered so that the Japanese lantern parade was made the feature for Tuesday evening, and was a brilliant success.

Thanksgiving services were held Thursday evening by the several denominations in a union service at Central Union church, presided over by Bishop Restarick, Rev. A. W. Palmer delivering the address.

The joy of the week culminated Saturday night in a Victory bonfire opposite Palace square, and the execution of the effigies of the kaiser, the crown prince and eight others. Upon formal trial they were condemned and sentenced to be shot, hanged and burned, Mayor Fern personating Mephistopheles, acting as chief executor.

QUEEN'S WILL CONTESTS.

Theresa Wilcox Belliveau and Jas. Kealoha, upon jury trial, were found guilty of conspiracy in connection with a purported will of Liliuokalani, which experts declared to be a forgery, which secured a three years' prison sentence, which is appealed from. Another party to the fraudulent document, Saml. Kamakaia, turned state's evidence and saved his bacon. Subsequently the principal in this case sought to secure next of kin rights to the estate, claiming descent from Keohokalole, mother of the late queen. This was also decided against her.

Three other alleged near kin claims have been before the court, to signally fail, the last being that of Mrs. Nawahie, which lasted several weeks. This case appeals for a jury trial.

QUESTION OF HOLIDAYS.

The various excuses for proclaiming extra holidays to the already too liberal list under legal authority, has at last drawn a protest at the public waste, business inconvenience and injustice to wage-earners. The climax is reached when the Mayor assumes to declare a holiday regardless of expressed public opinion in protest which the Governor respected..

AEROPLANE FATALITY.

The island's first aeroplane fatality is to be recorded in the

death of Corpl. Mark B. Grace of the 6th Aero Squadron, Ft. Kamehameha, which occurred Nov. 19th, by a fall of his plane at 10 a. m. within the fortification from a height of 3,500 feet, through failure to come out successfully from a "tail-spin" maneuver. He was accompanied in the flight by Second Lieut. Cary Crowdes, as pilot, who miraculously escaped with but comparatively slight injuries, while his companion was pinned beneath the machine which was wrecked by the fall, causing him external and internal injuries, from which he died toward evening.

THINGS MILITARY.

At the opening of the year Hawaii had 200 volunteers in active service over seas, and in a report, in May, the British Club volunteer list showed 175 men had gone forward.

The National Guard of Hawaii was called into service from the various islands June 1st to become the island garrison for relief of the regulars, and within a few days they moved into camp at Fort Armstrong.

Honolulu delighted to honor with an Aloha parade the departure on June 7th of the Hawaiian Company of volunteers, members of the Engineer Corps. As they marched from the Executive building to the wharf they were met by Prince Connaught, with the governor and staffs, who inspected and felicitated them at their embarkation.

NECROLOGY.

Again are we called to record a long list of departures of well-known residents, a number of whom died abroad. Since our last issue have occurred the following: H. S. Rickard (60), Rev. Hans Isenberg (62), Mrs. F. J. Lowrey, E. S. Cunha (66), Major F. J. Green (54), Mrs. P. A. Parmelee (70), Jno. D. Paris (63), F. C. Smith (46), Mrs. Henry Davis, Miss M. Ella Snow, C. L. Hopkins (64), Richard Ivers (53), Jas. B. Castle (60), B. F. Dillingham (73), Judge F. S. Lyman (80), Mrs. J. G. Spencer (60), Mrs. E. V. Hall (71), H. C. Carter, Cal. (38), Mrs. M. E. Alexander, Oakland; F. A. Hosmer, Mass. (64), J. P. Cooke (47), Genl. Edwd. Davis (72), M. T. Clegg, Jas. L. Torbert, Cal. (55),

Mrs. E. K. Wilder (87), Mrs. S. B. Dole (76), M. T. McIntyre, Sr. (78), A. S. Prescott (44), Rev. F. W. Merrill (61), Mrs. O. L. Sorrenson, N. Y.; Mrs. R. S. Johnston, Cal.; Chas. E. Wright (55), Mrs. H. M. Hepburn, Cal.; Mrs. C. S. Crane, Cal. (36), Dr. C. H. Trullinger (42), A. H. F. Renton, Cal. (36), Alex. Cockburn (70), H. Ginica, Cal. (40), E. de Harne (71), W. H. Hoogs, Sr. (57), R. W. Breckons (51), Mrs. Jane Mist (78).

MISCELLANEA.

Local made cement again looms up as a possibility by the locating of a gravel pit of material similar to that of Portland cement. With the success of Maui's effort in producing a first-class article, and the increasing need of this product in all construction and road work would seem to warrant the establishment of this new enterprise.

Daylight saving plan was again agitated for these islands the early part of this year, and, in April, on official orders from Washington, the navy department here set their clocks forward an hour, but it did not last long. Cutting a foot off the end of Pat's blanket to add to its head was found to give no greater length or warmth.

Dedication of the new Hongwanji Buddhist temple, on upper Fort street, began its services August 3rd, lasting several days, and on September 15th the Daijinju Shrine to the Sun God, on Liliha street, was dedicated. Another on King street beyond Pawaa is nearing completion.

Olaa Plantation has contracted for a paper mill plant at an expenditure of \$185,000, for the manufacture of mulching paper for its own use from its bagasse, of a capacity of sixteen tons per day.

The decennial census of the United States will take place next year, though it may not include the Philippines, according to the bill before Congress in March last.

Hilo was visited by a five-foot tidal wave September 6th, but fortunately doing little material damage.

The Civic Convention which was to have been held on Maui this year was passed over owing to war activities.

List of Sugar Plantations, Mills and Cane Growers Throughout the Islands.

Those marked with an asterisk (*) are planters only; those marked with a dagger (†) are mills only; all others are plantations complete, owning their own mills. (Corrected to November 1, 1918.)

Name.	Location.	Manager.	Agents.
Apokaa Sugar Co.*	Ewa, Oahu	G. F. Renton.	Castle & Cooke, Ltd.
Ewa Plantation	Ewa, Oahu	G. F. Renton.	Castle & Cooke, Ltd.
Gay & Robinson*	Makaweli, Kauai	S. Robinson	H. Waterhouse Trust Co., Ltd.
Grove Farm*	Nawiliwili, Kauai	Edwin Broadbent	American Factors, Ltd.
Hakalau Plantation Co.	Hilo, Hawaii	J. M. Ross	C. Brewer & Co., Ltd.
Halawa Sugar Co.	Kohala, Hawaii	H. H. Perry	T. H. Davies & Co., Ltd.
Hamakua Mill Co.	Hamakua, Hawaii	A. Lidgate	T. H. Davies & Co., Ltd.
Hawi Mill and Plantation Co.	Kohala, Hawaii	John Hind	Hind, Rolph & Co.
Hawaiian Agricultural Co.	Kau, Hawaii	Jas. Campsie	C. Brewer & Co., Ltd.
Hawaiian Commercial & Sugar Co.	Puunene, Maui	F. F. Baldwin.	Alexander & Baldwin, Ltd.
Hawaiian Sugar Co.	Makaweli, Kauai	B. D. Baldwin.	Alexander & Baldwin, Ltd.
Hawai Mill Co.†	Hilo, Hawaii	Jas. Henderson	C. Brewer & Co., Ltd. ¹
Hilo Sugar Co.	Hilo, Hawaii	John A. Scott.	C. Brewer & Co., Ltd.
Honolulu Plantation Co.	Halawa, Oahu	Jas. Gibb	C. Brewer & Co., Ltd.
Honokaa Sugar Co.	Honokaa, Hawaii	W. P. Naquin	F. A. Schaefer & Co., Ltd.
Honomu Sugar Co.	Hilo, Hawaii	Wm. Pullar	C. Brewer & Co., Ltd.
Hutchinson Sugar Plantation Co.	Kau, Hawaii	Geo. Gibb	C. Brewer & Co., Ltd.
Kaeleku Sugar Co.	Hana, Maui	J. Chalmers	T. H. Davies & Co., Ltd.
Kahuku Plantation	Kahuku, Oahu	Andrew Adams	Alexander & Baldwin, Ltd.
Kaiwiki Sugar Co.	Ookala, Hawaii	Jas. Johnston	T. H. Davies & Co., Ltd.
Kaiwiki Milling Co.†	Hilo, Hawaii		Fred. L. Walron, Ltd. ¹
Kekaha Sugar Co.	Kekaha, Kauai	H. P. Faye	American Factors, Ltd.
Kilauea Sugar Plantation Co.	Kilauea, Kauai	L. D. Larsen	C. Brewer & Co., Ltd.
Kipahulu Sugar Co.	Kipahulu, Maui	J. Fassoth	American Factors, Ltd.
Kohala Sugar Co.	Kohala, Hawaii	Geo. C. Watt.	Castle & Cooke, Ltd.

¹ Selling agents.

List of Sugar Plantations, Mills and Cane Growers Throughout the Islands.—Continued.

Name.	Location.	Manager.	Agents.
Koloa Sugar Co.....	Koloa, Kauai.....	E. Cropp.....	American Factors, Ltd.
Kona Development Co.....	Kona, Hawaii.....	T. Konia.....	H. Waterhouse Trust Co., Ltd.
Koolau Agricultural Co.*.....	Koolau, Oahu.....	S. E. Wooley.....	
Lae Plantation*.....	Lae, Oahu.....	S. E. Wooley.....	Alexander & Baldwin, Ltd.
Laupahoehoe Sugar Co.....	Laupahoehoe, Haw.....	R. Hutchinson.....	T. H. Davies & Co., Ltd.
Lihue Plantation Co.....	Lihue, Kauai.....	R. D. Moler.....	American Factors, Ltd.
Makee Sugar Co.....	Kealia, Kauai.....	H. Wolters.....	American Factors, Ltd.
Maui Agricultural Co.....	Haiku, etc., Maui.....	H. A. Baldwin.....	Alexander & Baldwin, Ltd.
McBryde Sugar Co.....	Wahiawa, Kauai.....	F. A. Alexander.....	Alexander & Baldwin, Ltd.
Niuli Mill & Plantation.....	Kohala, Hawaii.....	Robert Hall.....	T. H. Davies & Co., Ltd.
Oahu Sugar Co.....	Waipahu, Oahu.....	E. K. Bull.....	American Factors, Ltd.
Olaa Sugar Co.....	Olaa, Hawaii.....	C. F. Eckart.....	
Olowalu Co.....	Olowalu, Maui.....	Alexr. Valentine.....	C. Brewer & Co., Ltd.
Onomea Sugar Co.....	Hilo, Hawaii.....	John T. Moir.....	C. Brewer & Co., Ltd.
Pauhau Sugar Plantation Co.*.....	Hamakua, Hawaii.....	F. M. Anderson.....	C. Brewer & Co., Ltd.
Pacific Development Co., Ltd.*.....	Pahoa, Hawaii.....	A. R. Henderson.....	Fred. L. Waldron, Ltd.
Pacific Sugar Mill (†).....	Kukuihaele, Hawaii.....	W. P. Naquin.....	F. A. Schaefer & Co., Ltd.
Pepeekeo Sugar Co.....	Hilo, Hawaii.....	Jas. Webster.....	C. Brewer & Co., Ltd.
Pioneer Mill Co., Ltd.....	Lahaina, Maui.....	A. W. Collins.....	American Factors, Ltd.
Puaakea Plantation Co.....	Kohala, Hawaii.....	Geo. Buckholtz.....	H. Waterhouse Trust Co., Ltd.
Union Mill Co.....	Kohala, Hawaii.....	H. H. Renton.....	T. H. Davies & Co., Ltd.
Waiakea Mill Co.....	Hilo, Hawaii.....	D. Forbes.....	T. H. Davies & Co., Ltd.
Waialua Agricultural Co.....	Waialua, Oahu.....	W. W. Goodale.....	Castle & Cooke, Ltd.
Waianae Plantation.....	Waianae, Oahu.....	Fred. Meyer.....	J. M. Dowsett
Wailuku Sugar Co.....	Wailuku, Maui.....	H. B. Pennhalow.....	C. Brewer & Co., Ltd.
Waimanalo Sugar Co.....	Waimanalo, Oahu.....	Geo. Chalmers.....	C. Brewer & Co., Ltd.
Waimea Sugar Mill Co.....	Waimea, Kauai.....	G. R. Ewart, Jr.....	American Factors, Ltd.

HAWAIIAN SUGAR CROPS, IN TONS, 1913-18.

From Tables Prepared for Hawaiian Planters' Association by
its Bureau of Labor and Statistics.

Prior years of this table, originating in 1891, will be found in Annuals
since 1901.

Islands.	1913	1914	1915	1916	1917	1918
Production of Hawaii	197,415	217,654	240,785	197,654	232,132	163,192
" " Maui	124,819	144,940	160,283	150,312	147,648	137,786
" " Oahu	124,228	133,560	129,997	136,966	145,550	162,152
" " Kauai	100,336	120,884	115,380	108,551	119,244	113,712
Grand Total.....	546,798	617,038	646,445	593,483	644,574	576,842
Hawaii Plantations.						
Waialakea Mill Co....	13,076	14,922	16,141	14,484	14,876	8,259
Hawaii Mill Co.....	2,855	3,601	3,793	1,845	3,653	2,203
Hilo Sugar Co.....	14,033	18,937	17,905	16,450	16,150	12,834
Onomea Sugar Co...	16,887	19,600	21,320	18,732	21,067	16,923
Pepeekeo Sugar Co...	8,951	9,806	11,948	9,345	11,040	8,281
Honomu Sugar Co...	7,004	8,567	9,852	6,557	9,576	6,685
Hakalau Plant. Co...	15,402	16,863	19,327	15,951	20,235	14,369
Laupahoehoe Sgr. Co.	9,671	11,193	11,730	10,174	11,302	14,626
Kaiwiki Sugar Co...	5,140	6,932	6,849	5,013	7,191	4,625
Kukalau Plant. Co...	2,078)				
Kukalau Mill Co....	1,385	3,225	4,672	3,118	5,056	.....
Hamakua Mill Co....	6,845	7,057	9,261	7,661	9,926	5,873
Paauihau S. Plant. Co.	9,958	10,767	10,073	7,859	10,868	5,140
Honokaa Sugar Co...	10,103	7,272	8,613	7,232	9,031	4,696
Pacific Sugar Mill...	5,938	6,250	7,253	5,656	7,970	4,713
Niuli Mill and Plant.	2,803	2,700	3,098	2,110	2,556	2,102
Halawa Plantation...	1,641	2,087	2,840	1,705	2,559	1,310
Kohala Sugar Co....	5,675	4,475	7,780	4,170	6,427	4,349
Union Mill Co.....	1,769	2,608	3,437	1,966	2,392	1,169
Hawi Mill and Plant..	6,489	6,745	9,426	6,461	9,045	3,659
Kona Developm't Co.	2,943	3,477	3,444	144	4,555	1,762
Hutchinson S. Pl. Co.	5,510	5,909	6,781	9,723	6,647	5,645
Hawaiian Agri. Co...	12,856	17,890	16,407	13,818	12,385	13,067
Puakea Plantation...	839	1,035	1,429	963	937	690
Olaa Sugar Co.....	27,399	25,736	27,406	26,476	26,698	20,212
Puako Plantation....	185	.....	.....	.....	.....	.....
	197,415	217,654	240,785	197,654	232,132	163,192

HAWAIIAN SUGAR CROPS, 1913-18—Continued.

Maui Plantations.	1913	1914	1915	1916	1917	1918
Kipahulu Sugar Co..	1,408	2,126	2,699	848	1,510	1,240
Kaeleku Plant. Co.*...	4,938	6,225	6,605	6,721	6,240	6,512
Maui Agri. Co.	24,633	33,660	39,620	34,011	35,795	30,627
Hawn. Coml. & S. Co.	50,310	56,500	56,780	59,035	53,812	57,750
Wailuku Sugar Co...	13,988	16,100	19,177	15,094	15,038	10,271
Olowalu Co.	1,738	2,027	2,173	1,850	1,974	2,000
Pioneer Mill Co., Ltd.	27,804	28,302	33,229	32,753	33,279	29,386
	124,819	144,940	160,283	150,312	147,648	137,786
Oahu Plantations.						
Waimanalo Sgr. Co..	4,287	5,133	5,260	5,018	4,953	5,303
Lale Plantation	977	1,600	1,171	1,541	1,178	1,891
Kahuku Plant. Co...	6,215	8,193	7,823	6,534	8,317	7,830
Waiialua Agri. Co....	29,751	30,298	31,156	31,227	29,941	33,251
Waianae Co.	5,226	0,083	6,400	4,626	6,115	5,815
Ewa Plantation Co...	29,512	29,563	29,502	32,045	34,748	33,841
Apokaa Sugar Co....	381	925	356	793	939	690
Oahu Sugar Co.....	28,142	33,474	29,619	33,625	37,211	50,005
Honolulu Plant. Co...	19,337	20,154	18,233	20,586	21,562	22,042
Koolau Agri. Co.....	400	1,137	487	971	586	1,484
	124,228	133,560	129,997	136,996	145,550	162,152
Kauai Plantations.						
Kilauea S. Plant. Co.	5,451	6,426	6,733	5,216	5,924	5,335
Makee Sugar Co.....	7,418	10,660	10,944	5,138	13,509	11,641
Lihue Plantation Co.	19,819	22,065	21,492	20,168	20,174	18,424
Grove Farm Plntn...	3,695	4,415	4,007	3,569	3,836	3,790
Koloa Sugar Co.....	5,886	8,572	9,502	7,955	9,206	9,400
McBryde Sugar Co...	14,569	16,345	15,458	15,598	17,407	15,639
Hawaiian Sugar Co...	22,308	26,826	24,706	23,194	23,534	22,673
Gay & Robinson.....	4,821	5,172	5,259	4,650	4,510	5,661
Waimea Sgr. Mill Co.	1,610	2,258	1,404	2,054	1,965	2,203
Kekaha Sugar Co....	14,008	17,153	15,078	16,107	18,354	17,986
Estate of V. Knudsen	811	992	795	902	925	960
Total.....	100,336	120,884	115,380	108,551	119,244	113,712

* Formerly Hana Plantation.

TERRITORIAL REGISTER AND DIRECTORY FOR 1919.

Corrected to December 1, 1918.

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C. P. Iaukea.....Secretary
H. Irwin.....Attorney General
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L. H. Bigelow.....Supt. Public Works
B. G. Rivenburgh....Comr. Pub. Lands
H. W. Kinney...Supt. Public Instruction
Manley K. Hopkins.....Auditor
W. P. Jarrett.....High Sheriff
John F. Stone....Secretary to Governor

Jonah K. Kalaniana'ole.....
.....Delegate to Congress

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Maui—H. A. Baldwin, Geo. P. Cooke, H. W. Rice.
Oahu—Chas. E. King, C. F. Chillingworth, S. P. Correa, M. C. Pacheco, R. W. Shingle, Jno. Wise.
Kauai—J. H. Coney, Chas. A. Rice.

REPRESENTATIVES.

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Maui—Jno. Brown, Jr., L. L. Joseph, M. G. Paschoal, A. F. Tavares, L. B. Kamehehiwa, Ed. Waiaholo.
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Kauai—M. K. Aguiar, Jr., J. S. Chandler, Saml. K. Kaalul, Jas. Werner.

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...Governor and Commander in Chief

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Maj. Arthur G. Smith...Judge Adv.-Gen.
Maj. Leopold G. Blackman.....
.....Inspector-Gen.
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Capt. Jasper L. Pittenger.....Q. M. C.
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Maj. F. L. Morong.....Med. Corps
1st Lieut. Wm. A. De Tunco...Med. Corps
1st Lieut. Gordon Potter (Hilo).....
.....Med. Corps

Department of Judiciary.

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Associate Justice.....Hon. S. B. Kemp
Associate Justice....Hon. W. S. Edings

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.....Hon. C. W. Ashford
Second Judge 1st Circuit, Oahu.....
.....Hon. Jno. T. De Bolt
Third Judge 1st Circuit, Oahu.....
.....Hon. Wm. H. Heen
Second Circuit, Maui.....Hon. L. S. Burr
Third Circuit, Hawaii.....
.....Hon. Jas. W. Thompson
Fourth Circuit, Hawaii.....
.....Hon. Clement K. Quinn
Fifth Circuit, Kauai.....Hon. Lyle A. Dickey

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Asst. Clerk, Supreme Court.....
.....Robt. Parker, Jr.
Stenographer, Supreme Court.....
.....Miss Kate Kelly
Bailiff and Librarian Supreme Court
.....Jesse Uluihi
Copyists.....
.....Edith Mossman, Elizabeth Haili

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Chief Clerk and Cashier...Henry Smith
Assistant Clerks.....
.....B. N. Kahalepuna, Sibyl Davis
Clerks, 1st Judge.....
.....H. A. Wilder, J. Cullen
Clerks, 2d Judge.....
.....A. V. Hogan, A. E. Restarick
Clerks, 3rd Judge.....
.....A. W. Heen, Eva A. Robinson
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.....Horner, H. R. Jordan, O. P. Soares
Clerk, Second Circuit, Maui.....
.....H. C. Mossman
Clerk, Third Circuit, Hawaii.....
.....John Hills
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.....Thos. J. Ryan, Thomas Pedro
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Japanese.....Chester A. Doyle
Chinese.....Say Kau Lan

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S. Hookano.....Ewa
B. P. Zablan.....Waianae
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Wm. S. Wond, Second.....Wailua
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 Robt. Makahalupa.....South Kona

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 Jas. H. K. Kaiwi, Second.....Lihue
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 Wm. Huddy.....Hanalei
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 Italy—Consul (acting).....E. L. S. Gordon
 Austria-Hungary—Consul.....
Luis Guillen Gil, in charge
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 P. J. Jarrett.....Deputy 1st Division
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Koolauloa and Koolaupoko

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 G. D. Supe.....South Hilo
 Geo. Mundon.....Puna
 W. H. Lainaholo.....Kau
 W. D. Ackerman.....Kona
 Robt. Gillespie.....North Kohala
 Moses Koki.....South Kohala
 Chas. Notley.....Hamakua

Fourth Division, Kauai.

J. K. Farley.....Assessor
 W. K. Waiwaiole.....Koloa
 J. K. Kapuniai.....Waiimea
 C. J. Holt.....Lihue
 U. T. Barclay.....Hanalei
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 Assistant.....Capt. H. T. Martin
 Pilots, Honolulu—Capts. M. A. Madsen,
 J. R. Macaulay, J. F. Haglund.
 Harbor Master and Pilot, Hilo.....
Capt. F. Mosher
 Pilot, Kahului.....Capt. E. H. Parker
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 W. D. McBryde.....In Charge Nursery, Kauai

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 D. B. Kuhns.....Inspector's Assistant
 Bro. M. Newell.....
Fruit and Plant Inspector, Hilo
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Division of Animal Industry.

Victor A. Norgaard, V. S.....Supt. and Territorial Veterinarian
 Dr. L. N. Case.....Assistant
 Dr. J. C. Fitzgerald, Dep. V. S.....Maui
 Dr. H. B. Elliott, Dep. V. S.....E. Hawaii
 Dr. A. R. Rowatt.....Dep. V. S. W. Hawaii
 Dr. A. R. Glazyer, Dep. V. S.....Kauai
 Cyril Golding.....Asst., Kauai
 J. Richard.....Dairy and Live Stock Insptr.
 Miss M. T. Kelly.....Clerk and Stenog.
 Miss Florence White.....
Stenog. and Librarian
 Daniel Logan.....Editor Forester
 O. B. Lightfoot.....
Supt. Territorial Market

BOUNDARY COMMISSIONERS.

Oahu-Maui.....M. D. Monsarrat
 Hawaii.....W. H. Smith, Hilo
 J. A. Matthewman, Kailua
 Kauai.....Lyle A. Dickey

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Honolulu—John Markham, Norman E. Gedge.
 Ewa and Waianae—E. W. White, C. A. Brown.
 Waialua—R. Kinney.
 Makawao—E. Morton, W. Henning, J. E. Pires.
 Hamakua—W. J. Rickard, A. L. Moses, J. K. White.
 N. Kohala—W. S. May, Ernest K. Kane-hailua, E. K. Akina.
 N. Kona—A. S. Wall, Thos. Silva, J. Kaelemakule.
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 Kau—Geo. Campbell, John T. Nakai, G. J. Becker.
 Puna—H. J. Lyman, G. D. Supe.
 Molokai—S. Fuller, James G. Munro, H. R. Hitchcock.

LIQUOR LICENSE COMMISSIONERS.

City and County of Honolulu.

C. A. Long.....Secretary
 R. A. Cooke, J. O. Carter, L. M. Vetlesen

County of Maui.

C. D. Lufkin, D. C. Lindsay, W. F. Kaae, D. H. Case.

County of Hawaii.

John T. Moir.....Chairman
 R. T. Guard, T. C. White, Saml P. Woods, J. A. M. Osorio.

County of Kauai.

W. H. Rice, Sr.....Chairman
 G. N. Wilcox, W. D. McBryde, B. D. Baldwin, W. F. Sanborn.

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A. A. Dunn.....Chief Clerk
S. M. Kanakanui.....Surveyor and Title Searcher
Henry Peters.....First Clerk
Wm. J. Coelho.....Translator
H. L. Kinslea, S. F. Paua, E. W. Arm-
strong.....Clerks

Sub-Agents.

1st District, Hilo and Puna.....
.....Jos. G. Andrews
2nd District, Hamakua, Jos. G. Andrews
3rd District, Kona.....Julian R. Yates
3rd District, Kau.....W. H. Hayselden
4th District, Maui.....W. O. Aiken
5th District, Oahu.....A. A. Dunn
Miss B. Hundley, Asst.

Division of Hydrography.

C. T. Bailey.....
.....Chief Hydrographer and Engineer
J. E. Stewart.....Office Engineer
H. A. R. Austin, Asst. Engineer (Maui)
R. D. Klise, W. V. Hardy.....
.....Assistant Engineers
J. Kaheaku.....Computer
E. E. Goo.....Clerk

LAND BOARD.

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J. F. Brown.....Secretary
J. W. Waldron, W. H. C. Campbell,
A. W. Carter, E. Henriques.

BOARD OF COMMISSIONERS OF
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Chairman ex-officio.....C. P. Iaukea
Commissioners—A. G. M. Robertson, M.
M. Scott.
Librarian.....R. C. Lydecker
Translator.....Stephen Mahaulu

DEPARTMENT OF PUBLIC IN-
STRUCTION.

Superintendent.....H. W. Kinney
Commissioners.

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L. G. Blackman, Mrs. Theo. Richards
Maui.....D. C. Lindsay
Hawaii.....E. D. McGuire, W. H. Smith
Kauai.....E. A. Knudsen
Inspector and Statistician, W. C. Avery

Supervising Principals—

Oahu—James C. Davis.
Maui—Geo. S. Raymond.
Hawaii, East—Bertha B. Taylor; Hawaii,
West—Eugene Horner.
Kauai—Bernice Hundley.
Secretary.....Miss Daisy Smith
Asst. Secretary.....C. K. Stillman, Jr.
Asst. Clerk.....Miss Eleanor L. Holt
Asst. Clerk.....H. H. Williams

Board of Examiners..

W. C. Avery, Geo. S. Raymond,
Eugene Horner, James C. Davis.
Cyril O. Smith, Bernice Huntley

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Rev. V. Franckx, A. F. Griffiths,
Mrs. F. W. Macfarlane, Mrs. A. Lewis,
C. A. Heiser,
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BOARD OF HEALTH.

President.....S. S. Paxson
Members—Dr. F. E. Trotter, Dr. W. C.
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Denison, Jno. Markham, G. J. Wal-
ler, Jr.
Secretary.....K. B. Porter
Sanitary Expert.....Jas. T. Wayson
Chief Sanitary Officer, Oahu, C. Charlock
Supt. Tuberculosis Bureau.....
.....Dr. Ruth McKellar
Registrar Genl. Births, Deaths and
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Asst. Clerk.....H. Markham
Stenographer.....Miss M. Weir
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.....M. B. Barnes
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Supt. Leper Settlement.....J. D. McVeigh
Resident Physician.....Dr. W. J. Goodhue
Chief Sanitary Officer, Hawaii—Albert
Christian.
Chief Sanitary Officer, Maui — Geo.
Weight.
Chief Sanitary Officer, Kauai—F. B.
Cook.

Government Physicians.

Oahu—

H. Wood.....Waialua
R. J. McGettigan.....Ewa and Waianae
Dr. H. B. Cooper.....Aiea
C. Buffett.....Koolauloa and Koolaupoko

Maui—

Franklin Burt.....Lahaina
Dr. A. C. Rothrock.....
.....Makawao and Kula
Dr. Geo. L. Broadrup.....Hana
Wm. Osmer.....Wailuku
F. L. Sawyer.....Puunene and Kihei
C. P. Durney.....Kula and Upper Makawao

Hawaii—

O. A. Jeffreys.....N. and S. Kona
B. D. Bond.....N. Kohala
R. G. Miller.....Hamakua and S. Kohala
L. L. Sexton.....S. Hilo
W. D. Whitman.....N. Hilo
Frederick Irwin.....Puna
Dr. A. T. Roll.....Kau

Kauai—

Wm. Dunn.....Waimea
A. H. Waterhouse.....Koloa
E. N. Young.....Lihue
K. Yanagihara.....Hanalei
J. M. Kuhns.....Kawaihau

INDUSTRIAL ACCIDENT BOARD.

City and County of Honolulu—R. B.
Booth, A. J. Campbell, F. O. Boyer,
F. E. Steere, A. J. Wirtz.
Maui—W. H. Field, W. J. Cooper, Geo.
Weight, G. Freeland, W. A. McKay.

Hawaii—D. Ewaliko, B. K. Baird, Jas. Webster, H. A. Truslow.
 Kauai—J. H. Moragne, H. H. Brodie, J. M. Lydgate, E. E. Mahlum.

CIVIL SERVICE COM. BRD. HEALTH.
 W. C. McGonagle, T. J. Fitzpatrick
 Dr. F. F. Hedemann.

BOARDS OF EXAMINERS.

Medical—Dr. R. W. Benz, Dr. J. R. Judd, Dr. Grover A. Batten.
 Pharmacy—H. H. Morehead, Dr. F. F. Hedemann, A. J. Gignoux.
 Dental—O. E. Wall, M. E. Grossman, F. E. Clark.
 Veterinary—V. A. Norgaard, W. T. Monarratt, J. C. Fitzgerald.

COMMISSIONERS OF INSANITY.

L. J. Warren.....Chairman
 Drs. C. B. Cooper, G. Herbert.

PUBLIC UTILITIES COMMISSION. Established 1913.

ChairmanW. T. Carden
 Member.....A. J. Gignoux

CHAMBER OF COMMERCE OF HONOLULU.

Reorganized May 27, 1914.

W. F. Dillingham.....President
 F. C. Atherton.....First Vice-President
 A. Lewis, Jr.....Second Vice-President
 E. W. Sutton.....Treasurer
 Raymond C. Brown.....Secretary
 Directors—J. J. Belser, E. A. Berndt,
 W. W. Chamberlain, J. L. Cockburn,
 R. A. Cooke, G. P. Denison, J. H.
 Drew, W. F. Frear, A. J. Gignoux,
 John Guild, F. D. Lowrey, L. Tenney
 Peck, H. E. Vernon, J. T. Warren,
 John Waterhouse, G. P. Wilder, J. N.
 S. Williams.

MAUI CHAMBER OF COMMERCE.

President.....R. A. Wadsworth
 Vice-President.....H. W. Rice
 Secretary.....D. H. Case
 Treasurer.....C. D. Lufkin

HILO BOARD OF TRADE.

Organized

President.....G. H. Vickers
 Vice-PresidentE. N. Deyo
 Secretary.....B. C. Stewart
 Treasurer.....E. F. Nichols

KAUAI CHAMBER OF COMMERCE.

Organized 1913.

President.....T. Brandt
 Vice-President.....R. D. Moler
 Secretary.....J. M. Lydgate
 Treasurer.....J. I. Silva
 Auditor.....W. N. Stewart

HAWAII PROMOTION COMMITTEE.

E. A. Berndt.....Chairman
 J. D. McInerney, A. F. Wall, C. O. McKenzie, A. H. Ford, Clifford Kimball (Oahu), W. O. Aiken (Maui), James Henderson (Hawaii), W. H. Rice, Jr. (Kauai), Fred. J. Halton, Secretary.

HONOLULU STOCK AND BOND EXCHANGE.

Organized August 8, 1898.

President.....W. A. Love
 Vice-President.....C. G. Heiser
 Secretary.....D. L. Conkling
 Treasurer.....H. Waterhouse Trust Co.

HAWAIIAN SUGAR PLANTERS' ASSOCIATION.

Re-organized Nov. 18, 1895.

President.....E. H. Wodehouse
 Vice-President.....Jno. Waterhouse
 Secretary and Treasurer....W. O. Smith
 Assistant Sec.-Treas.....L. J. Warren
 Auditor.....J. W. Waldron

EXPERIMENT STATION OF PLANT- ERS' ASSOCIATION.

Station Staff.

H. P. Agee.....Director
 R. C. L. Perkins.....Consulting Entomologist
 Otto H. Swezey, F. Muir.....Entomologists
 P. H. Timberlake, F. X. Williams.....Asst. Entomologists
 H. L. Lyon.....Pathologist
 E. L. Caum, M. L. Hartmann.....Asst. Pathologists
 R. S. Norris.....Sugar Technologist
 W. R. McAllepe.....Asst. Sugar Technologist
 P. S. Burgess.....Chemist
 A. Brodie, C. E. Warriner, F. R. Werthmueller.....Asst. Chemists
 J. P. Melanphy.....Fertilizer Sampler
 J. A. Verret, R. S. Thurston, R. M. Allen.....Assoc. and Asst. Agriculturists
 W. R. R. Potter.....Illustrator
 H. B. Campbell.....Business Agent

HAWAII RATING BUREAU

Jas. M. Macconel.....President
 Edwin Benner.....Vice-President
 Bernard Froiseth.....Secretary
 H. Waterhouse Trust Co.....Treasurer
 Audit Co. of Hawaii.....Auditor

HAWAIIAN CHEMISTS' ASSOCIATION

President.....P. S. Burgess
 Vice-President.....W. P. Foster
 Secretary-Treasurer.....S. S. Peck

BOARD OF MARINE UNDERWRITERS —AGENCIES

Boston.....C. Brewer & Co.
Philadelphia.....C. Brewer & Co.
New York.....Bruce Cartwright
Liverpool.....Theo. H. Davies & Co.
Lloyds, London.....Theo. H. Davies & Co.
San Francisco.....Bishop Ins. Agency

BOARD OF FIRE UNDERWRITERS OF TERRITORY OF HAWAII.

Jno. Waterhouse.....President
Z. K. Myers.....Vice-President
B. Frosette.....Secretary
H. Waterhouse Trust Co.....Treasurer
Audit Co. of Hawaii.....Auditor

HAWAII RATING BUREAU

Jas. M. Macconel.....President
Edwin Benner.....Vice-President
Bernard Froiseth.....Secretary
H. Waterhouse Trust Co.....Treasurer
Audit Co. of Hawaii.....Auditor

QUEEN'S HOSPITAL.

Erected in 1860.

President.....Geo. W. Smith
Vice-President.....A. G. M. Robertson
Secretary.....John Guild
Treasurer.....Geo. C. Potter
Auditor.....Audit Co. of Hawaii
Resident Physician.....Dr. R. J. Mermod
Superintendent.....Dr. H. T. Hollmann
Bookkeeper.....E. J. Rego
Asst. Supt.....Miss Helen Macfarlane
Head Nurse.....Miss Marion Rowland
Housekeeper.....Mrs. F. Kuhlmann
Trustees—A. J. Campbell, G. W. Smith,
G. C. Potter, Edgar Henriques, John
Guild, A. G. M. Robertson, G. H.
Brown.

LEAHI HOME.

Organized April 4, 1900.

President.....A. A. Young
Vice-Presidents
Father Valentin, C. Montague Cooke
Secretary.....C. R. Hemenway
Treasurer.....A. W. T. Bottomley
Auditor.....G. P. Denison
Medical Supt.....A. N. Sinclair, M. B. C. M.
Asst. Supt.....Robt. Anderson
Matron.....Mrs. A. B. Chamberlain
Nurses.....Miss McBryde, Miss Ford
Clerk.....L. J. Fagg

CHILDREN'S HOSPITAL.

Opened Nov. 24, 1909.

President.....S. B. Dole
Vice-President.....E. A. Mott-Smith
Secretary.....Miss A. Budd
Treasurer.....W. O. Smith
Auditor.....Audit Co. of Hawaii
Superintendent.....Miss J. N. Dewar
Trustees—S. B. Dole, W. O. Smith, J.
A. Balch, A. S. Wilcox, Allen Her-
bert, Geo. B. Isenberg, E. A. Mott-
Smith.

HOSPITAL FLOWER SOCIETY.

President.....
Vice-President.....Mrs. R. D. Mead
Secretary.....Mrs. A. J. Gignoux
Treasurer.....Mrs. W. F. Soper

SAILORS' HOME SOCIETY.

Organized 1853.

Meets annually in December.

President.....
Secretary.....C. H. Atherton
Treasurer.....Jno. Waterhouse
Trustee.....J. A. Kennedy

DAUGHTERS OF HAWAII.

Hon. Regent.....Mrs. B. F. Dillingham
Presiding Regent.....Mrs. F. M. Swanzy
First Vice-Regent.....Mrs. Laura Wight
Second Vice-Regent.....Mrs. J. P. Erdman
Historian.....Mrs. L. Webb
Cor. Secretary.....Mrs. L. D. Stubbs
Rec. Secretary.....Mrs. G. C. Potter
Treasurer.....Miss M. Ahrens

TERRITORIAL LIBRARY.

HONOLULU LIBRARY ASSOCIATION.

Organized March.

Incorporated June 24, 1879.

President.....Prof. M. M. Scott
Secretary.....J. H. Fisher
Treasurer.....A. Gartley
Auditor.....J. H. Fisher

LIBRARY OF HAWAII.

Trustees.

C. H. Atherton.....President
Rev. H. B. Restarick.....Vice-President
J. F. Blake.....Treasurer
Rev. W. D. Westervelt.....Secretary
A. Lewis, Jr., Mrs. L. L. McCandless,
A. Gartley.

Library Staff.

Edna I. Allyn.....Librarian
Maud Jones, Alice E. Burnham...Assts.
Mary F. Carpenter.....Cataloguer
Carrie P. Green.....Reference Librarian
Mary S. Lawrence.....Children's Librarian
Akana K. Ma.....Clerk
Helen J. Stearns.....Islands Dept.

HAWAIIAN HISTORICAL SOCIETY.

Organized Jan. 11, 1892.

President.....S. B. Dole
Vice-Presidents.....Mrs. W. F.
Frear, W. A. Bowen, Rev. L. Kroll
Recording Secretary.....H. M. von Holt
Cor. Secretary.....W. D. Westervelt
Treasurer.....Jno. L. Fleming
Librarian.....Miss E. I. Allyn

KAUAI HISTORICAL SOCIETY.

President.....Wm. Hyde Rice
Vice-President.....J. M. Lydgate
Sec. Treas.....Miss E. N. Wilcox

BERNICE PAUAAHI BISHOP MUSEUM. Board of Trustees.

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E. F. Bishop.....Vice-President
Wm. Williamson.....Secretary
J. M. Dowsett.....Treasurer
W. O. Smith, H. Holmes, R. H. Trent.

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.....Director Emeritus
W. H. Dail, D. Ph....Hon. Cur. of Molusca
John F. G. Stokes.....
.....Curator of Polynesian Ethnology
C. Montague Cooke, Jr., D. Ph....
.....Curator of Pulmonata
C. N. Forbes.....Curator of Botany
Otto H. Swezey.....
.....Hon. Curator of Entomology
Miss E. B. Higgins.....Librarian
Miss L. E. Livingston.....Library Asst.
Mrs. H. M. Helvie.....
.....Superintendent of Exhibition Halls
J. W. Thompson....Artist and Modeler
John J. Greene.....Printer
M. L. H. Reynolds.....Cabinet Maker

BAR ASSOCIATION OF HAWAII. Organized June 28, 1899.

President.....E. M. Watson
Vice-President.....A. Lindsay
Secretary.....E. W. Sutton
Treasurer.....A. M. Cristy

HAWAIIAN PHILATELIC SOCIETY. Organized April 13, 1911.

President...Maj. R. W. Peck, 2d U.S. Inf.
Vice-President.....Julius Unger
Secretary.....C. J. Cooper
Treasurer.....E. M. Ehrenhorn
Librarian.....E. L. Caum
Supt. Junior Soc.....A. F. Cooke

Y. M. C. A. CHESS CLUB. Organized Oct. 17, 1913.

President.....C. H. Medcalf
Vice-President.....H. W. Vaughan
Secretary.....H. C. Jewell
Treasurer.....H. B. Campbell

HAWAIIAN MEDICAL ASSOCIATION Organized May 24, 1895.

President.....H. H. Blodgett
Vice-President.....Lt. H. Putnam
Secretary.....Dr. H. W. Holman
Treasurer.....Dr. R. W. Benz

HAWAIIAN SOCIETY SONS OF THE AMERICAN REVOLUTION. Organized June 17, 1895.

President.....D. L. Withington
Vice-President.....Rev. L. L. Loufhourou
Secretary.....J. T. Taylor
Treasurer.....Jno. Effinger
Registrar.....E. T. Winant
Board of Managers—W. A. Bryan, W.
R. Castle, W. J. Forbes.

ALOHA CHAPTER, DAUGHTERS OF THE AMERICAN REVOLUTION.

State Regent.....Mrs. A. Francis Judd
Capt. Regent.....Mrs. Hermann Hugo
Vice-Regent.....Mrs. J. M. Atherton
Recording Sec.....Mrs. S. C. Goodknight
Treasurer.....Miss Charlotte V. Hall
Registrar.....Mrs. C. B. Andrews
Historian.....Mrs. J. W. Caldwell
Chaplain.....Mrs. Jessica Pascoe

HAWAIIAN EVANGELICAL ASSOCIATION.

Originally Organized 1823.

Constitution revised 1863. Annual Meet-
ing June.

President.....F. J. Lowrey
Vice Presidents
.....A. C. Alexander, Walter F. Frear
Cor. Secty.....Rev. H. P. Judd
Rec. Secretary.....Rev. J. L. Hopwood
Treasurer.....Theo. Richards
Auditor.....W. A. Bowen

WOMAN'S BOARD OF MISSIONS. Organized 1871.

President.....Mrs. Theo. Richards
Vice-Presidents—Miss Alice Knapp, Mrs.
H. P. Judd.
Recording Secty.....Mrs. R. D. Williams
Home Cor. Secty.....Edgar Wood
Foreign Cor. Secty.....Miss A. E. Judd
Treasurer.....Mrs. B. F. Dillingham
Asst. Treasurer.....Miss C. C. Varney
Auditor.....W. J. Forbes

MISSION CHILDREN'S SOCIETY. Organized 1851. Annual Meeting June.

President.....Gerrit P. Wilder
Vice-President.....W. W. Chamberlain
Secretary.....Mrs. R. W. Andrews
Recorder.....R. W. Andrews
Treasurer.....L. A. Dickey

YOUNG MEN'S CHRISTIAN ASSOCIATION.

Organized 1869. Annual Meeting April.

President.....W. G. Hall
Vice-President.....Ed Towse
Treasurer.....R. A. Cooke
Rec. Secretary.....Chas. F. Clemons
Executive Secty.....Arthur E. Larimer
Membership Secty.....Richard Vilim
Business Secty.....Floyd H. Emmans
Educational Secty.....Rolla K. Thomas
Physical Director.....Robt. Stone
Community Boys' Secy.....Saml. W. Robley
Boys' Dept. Secty.....W. W. Sharrar

ARMY AND NAVY Y. M. C. A.

Organized Aug. 3, 1917.

Committee of Management -- James Wakefield, chairman; F. D. Lowrey, Treas.; E. A. Berndt, Arthur G. Smith, Dr. James A. Morgan, John Waterhouse.

Executive Officers

Urban Williams... Supervising Secretary
Howard N. Mosher... Associate Secretary
F. R. Dudley, Chas. F. Loomis, Geo. N. Culfee, Geo. B. Wesson..... Asst. Secretaries

YOUNG WOMEN'S CHRISTIAN ASSOCIATION.

Organized 1900.

Hon. President... Mrs. B. F. Dillingham
President..... Mrs. W. F. Frear
Secretary..... Mrs. F. C. Atherton
Cor. Secretary..... Mrs. C. M. Cooke, Jr.
Treasurer..... Mrs. I. J. Shepherd
Gen. Secty..... Miss Grace Channon

FREE KINDERGARTEN AND CHILDREN'S AID ASSOCIATION.

Organized 1895.

President..... Mrs. F. M. Swanzy
Vice-Presidents..... Mrs. W. F. Frear, Mrs. Theo. Richards
Recording Secty..... Mrs. I. M. Cox
Treasurer..... Mrs. E. A. Ratn
Auditor..... J. L. Cockburn

ASSOCIATED CHARITIES.

Organized June 7, 1899.

President..... Jas. L. Cockburn
1st Vice-President..... Riley H. Allen
2nd Vice-President..... Mrs. A. F. Wall
Treasurer..... G. C. Potter
Secty. and Manager..... Miss B. E. Smith
Auditor..... Henry Davis

STRANGERS' FRIEND SOCIETY.

Organized 1852. Annual Meeting June.

President..... Mrs. A. Fuller
Vice-President..... Mrs. A. A. Young
Secretary..... Mrs. S. M. Damon
Treasurer..... Mrs. E. W. Jordan
Auditor..... E. W. Jordan
Directress..... Mrs. E. B. Waterhouse

BRITISH BENEVOLENT SOCIETY.

Organized 1869.

President (ex-officio)... H.B.M.'s Consul
Vice-President..... Rev. Wm. Ault
Secretary..... W. C. Shields
Treasurer..... H. B. Sinclair

HAWAIIAN HUMANE SOCIETY.

President..... Mrs. M. F. Prosser
Acting President..... Mrs. T. J. King
Hon. President..... Mrs. S. M. Damon
Vice-Presidents—Mrs. R. D. Walbridge, Mrs. E. P. Low
Secretary..... Miss E. Damon
Treasurer..... Mrs. E. A. Mott-Smith
Auditor..... J. O. Young
Agent..... Miss M. L. Smith
Hon. Agent..... Miss Lucy K. Ward

OAHU CEMETERY ASSOCIATION.

President..... F. J. Lowrey
Vice-President..... S. G. Wilder
Secretary..... H. H. Walker
Treasurer..... Hawaiian Trust Co.

ANTI-SALOON LEAGUE OF HAWAII.

Organized March 4, 1901.

Superintendent..... John W. Wadman
President..... Theo. Richards
Vice-President..... Akaiako Akana
Vice-Pres. Honorary. Mrs. J. M. Whitney
Secretary..... Geo. W. Paty
Treasurer..... W. A. Bowen

THE OUTDOOR CIRCLE.

(For the beautifying of Honolulu.)

President..... Mrs. A. A. Young
1st Vice-President..... Mrs. I. M. Cox
2d Vice-President..... Mrs. G. M. French
Secretary..... Mrs. W. L. Moore
Treasurer..... Mrs. Z. K. Myers
Ex. Officer..... Mrs. A. E. Murphy

PACIFIC CLUB.

Organized 1852. Premises on Alakea Street, two doors below Beretania.

President..... A. J. Campbell
Vice-President..... E. I. Spalding
Secretary..... W. H. Lewers
Treasurer..... R. E. McGrew

HAWAIIAN VOLCANO RESEARCH ASSOCIATION.

President..... L. A. Thurston
Vice-President..... W. D. Westervelt
Vice-President..... C. M. Cooke
Treasurer..... L. T. Peck
Secretary..... L. W. de Vis-Norton
Observatory Director.....
..... Dr. T. A. Jaggar, Jr.

COMMERCIAL CLUB OF HONOLULU.

Organized Aug. 30, 1906.

President..... J. J. Belser
Vice-President..... Ed Towse
Secretary..... G. T. Kluegel
Treasurer..... B. E. Noble

BRITISH CLUB.

President..... Fred. Harrison
Vice-President..... Geo. Bustard
Secretary..... J. Hay Wilson
Treasurer..... F. W. Jamison
Auditor..... H. D. Young

COUNTRY CLUB.

Organized 1906.

President..... R. B. Booth
1st Vice-President..... W. H. McInerney
2nd Vice-President..... A. G. Smith
Secretary..... G. H. Buttolph
Treasurer.....

OUTRIGGER CLUB.

Organized May, 1908.

President.....Warren Dease
 Vice-President.....A. Walker
 Secretary.....W. J. Dickson
 Treasurer.....I. Lemon
 Captain.....G. D. Center

WOMEN'S AUXILIARY.

President.....Mrs. F. M. Swanzy
 Vice-President.....Mrs. A. Fuller
 Treasurer.....Mrs. W. J. MacNiel
 Secretary.....Mrs. W. A. Wall

HUI NALU (Surf Club).

Organized 1911.

President.....Harold Castle
 Vice-President.....Al. Castle
 Secretary.....Robt. McB. Purvis
 Treasurer.....George I. Brown
 Commodore.....Duke Kahanamoku
 Captain.....J. K. Evans
 Auditor.....Thos. Tredway

HAWAIIAN ASSOCIATION, A. A. U.

President.....W. T. Rawlins
 Vice-President.....Geo. W. Dyson
 Sec.-Treas.....Mrs. F. L. Leo
 Registration Com.—J. F. Soper, W.
 T. Rawlins, G. C. Jackson.

**KONA IMPROVEMENT CLUB,
HAWAII**

Organized 1912.

Rev. Albert S. Baker.....President
 F. R. Greenwell.....Vice-President
 W. D. McKillop.....Treasurer
 L. Macfarlane.....Secretary
 Executive Committee --- Rev. A. S.
 Baker, Chairman; L. Macfarlane,
 W. McQuaid, T. C. White, R. Wal-
 lace, A. L. Greenwell, W. D. McKillop.

AD CLUB.

President.....C. R. Frazier
 1st Vice-President.....P. M. Pond
 2nd Vice-President.....Thos. Sharp
 Secretary.....Fred. Halton
 Treasurer.....C. K. Medcalf

HONOLULU FIRE DEPARTMENT.

Originally organized 1851, and conducted
 as volunteers till March 1, 1893,
 when it was changed to a paid dept.
 Chief Engineer—Chas. Thurston.
 Asst. Engineer—Wm. Blaisdell.
 Engine No. 1—Location Central Station,
 cor. Fort and Beretania streets.
 Engine No. 2—Location, Central Sta-
 tion, cor. Fort and Beretania Sts.
 Chemical Co. No. 1—Location, Central
 Station, cor. Fort and Beretania Sts.
 Hook and Ladder Truck—Location, Cen-
 tral Station, cor. Fort and Beretania.
 Engine Co. No. 3—Location cor. Wilder
 avenue and Pilihoi street.
 Engine Co. No. 4—Location King street
 and Austin lane.
 Engine Co. No. 5—Location Kaimuki.

OAHU COLLEGE.

Administrative Officers.

Arthur F. Griffiths, A.M.....President
 Levi C. Howland.....Ast. to the Pres.

Academy Teachers.

Misses Susan Clark, Charlotte Dodge,
 Antoinette Foster, Marie Johnston,
 Catherine Johnson, Edith Knights;
 Arthur Griffiths, Mrs. Edith Guild,
 L. C. Howland, O. B. Loewen, H. M.
 Luquiens, Wm Mather, W. J. Mac-
 Neil, C. F. Schmutzler, Mrs. Eda A.
 Schmutzer, Mrs. Ruth Thompson.

Junior Academy.

C. T. Fitts, Albert Conrad, Misses Wilda
 Davis, Helen Hasty, Evangeline
 Holmes, Dora Kirwin, Jane Knox,
 Elizabeth Low, Daisy Newby, Daisy
 Spry, Deborah Walsh, John Horn,
 Mrs. Irmgard Horn.

Elementary School.

Misses Emma Barnhard, Gertrude
 Blake, Florence Carter, Alice Castle,
 Lucy Doggett, Florence Jackson,
 Anna Johnson, Mrs. O. B. Loewen,
 Misses Frances Mowrey, Madeline
 McMahon, Gladys McRae, Beatrice
 Perry, Edith Phillips Anna M. Rian,
 Maurine Samson, Claire Uecke, Bes-
 sie Walthall, Mary Winne, Jane
 Winne, Ruth Woodford.

Special Teachers.

Miss Margaret Clarke, Mrs. Edith Clay-
 bourne, Misses Helen Coles, Mabel
 Hawthorne, Mrs. P. S. Ideler, Misses
 Emily Parrish, Helen Spaulding,
 Genevieve Springston, Alleen M.
 Thompson, Margaret Way, Lt. Harry
 C. Smith, H. G. Wootten, Frank Bar-
 wick.

**BOARD OF REGENTS, COLLEGE OF
HAWAII.**

Wallace R. Farrington.....Chairman
 Arthur L. Dean.....Secretary
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 enway, Mrs. J. R. Ashford, A. G.
 Smith.

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Pres. and Prof. of Chemistry
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Prof. of Math. and Astronomy
 John M. Young, B.S., M.E.....
Prof. of Engineering, College Engr.
 William A. Bryan, B.S., Prof. of Zoology
 Wm. C. Furer, Prof. Civil Engineering
 Frank T. Dillingham, B. S.....
Prof. of Chemistry
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Professor of English
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Professor of Botany
 Herbert S. Walker, A.B.....
Professor of Sugar Technology

L. A. Henke, B.S....Prof. of Agronomy
Joseph F. C. Rock.....Botanist
Minnie E. Chipman.....
.....Professor of Ceramics and Design
Arnold Romberg, B.S., Ph.D.....
.....Professor of Physics
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.....Professor of Entomology
Mae Wells, A.L.....
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.....Instructor in History and Economics
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.....Asst. Prof. of Modern Languages
Elizabeth T. Kastle.....
.....Instructor in Chemistry
Anna von Balzen Dahl.....
.....Instructor in Textiles
Harvey J. Wentzel, B.S.....
.....Instructor in Agriculture
Alice E. Harbaugh.....
.....Asst. in Drawing and Ceramics
Elizabeth L. Bryan, Sc.D.....Librarian
Lt. Wm. Barnhart, B.S.....
.....Commandant S. A. T. C.

MID-PACIFIC INSTITUTE OFFICERS.

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M. L. Copeland.....Assistant Treasurer
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Elizabeth Appleton, Bruce Cumming,
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Griswold, Earl V. Harlow, Misses
Edna Lochridge, Nola M. Magruder,
Beulah A. Stebno, Bessie R. Wood,
Hazel Woodruff; Arthur E. Wyman;
Miss Elizabeth J. Jones, Ruel E.
Mathis, Ma Wing Yue, S. Nildate,
C. Kato.

Faculty of Kawaihahao Seminary.

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Miss Mary F. Kinney.....Vice-Principal
Miss Mary P. Campbell.....Matron
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role, Hazel M. Abell, Dorothy Good-
rich, Roselle F. Faast, Mary F. Var-
ley, Edith V. Currier; Dr. Emily F.
Wells, Mrs. Shida.

FACULTY AND ASSISTANTS OF
KAMEHAMEHA SCHOOLS.

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Ernest C. Webster, President of Schools
F. M. Watson.....Principal
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J. Borden, Milton E. Crozman, C. H.
Hitchcock, R. N. Hudspeth, John
Mengel, D. H. Reamy, Uldrick
Thompson, Miss Emma E. Winslow.

Assistants—School for Boys.

Mrs. Laura C. Hillmer.....Matron
Miss Josephine E. Marquardt.....Nurse
George Hitchings, J. F. Livesey, Nel-
son G. Smith, Mr. Beney.
Miss Winifred Schaeffer..Stenographer

Faculty—School for Boys—Pre-
paratory Department.

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Ayres, Nevada Moore, Maude Post.

Assistants.

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Miss Lena Babcock.....Asst. Matron
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helona, Emily Keapo, Katherine
Groves, Adolph G. Hottendorf.

Faculty—School for Girls.

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C. E. Church, E. P. Fisher, E. O.
Johnston, F. A. Lemmon, W. E. Love,
F. J. Lowe, H. E. McCracken, E. V.
Moore, O. L. Saunders, A. D.
Schwartz.
Misses M. C. Dower, A. W. Gilbert
.....Secretaries

Assistants.

Misses D. H. Bell, L. Bray, E. K. Nainoa

PRINCIPAL PUBLICATIONS.

Sunday Advertiser, issued every Sunday
morning by the Hawaiian Gazette
Co., Ltd. Edwd. P. Irwin, Editor.

The Daily Pacific Commercial Adver-
tiser, issued by the Hawaiian Gazette
Co. every morning (except Sunday).
Edwd. P. Irwin, Editor.

The Honolulu Star-Bulletin, issued every
evening (except Sundays), by the
Honolulu Star-Bulletin, Ltd. R. A.
McNally, Editor. Semi-weekly issued
on Mondays and Thursdays.

The Guide, issued every Tuesday and
Friday morning by the Guide Pub.
Co.

The Friend, Organ of the Hawaiian
Board, issued on the first of each
month. F. S. Scudder, Managing
Editor.

The Hawaiian Church Chronicle, issued
on the first Saturday of every month.
Rt. Rev. H. B. Restarick, Editor.

The Paradise of the Pacific, issued
monthly. Mrs. E. A. Langton-Boyle,
Publisher.

The Mid-Pacific Monthly, an illustrated
descriptive magazine. Alex. Hume
Ford, Editor and Publisher.

The Hawaiian Forester and Agricultur-
ist, issued monthly under direction
of Board of Com. Agr. and Forestry.
Daniel Logan, Editor.

The Kuokoa (native), weekly, issued ev-
ery Friday morning by the Hawaiian
Gazette Co., Ltd. Solomon Hanohano,
Editor.

Aloha Aina (native), issued every Sat-
urday. J. T. Ryan, Editor.

Ka Holomua (native), issued each Saturday.

Ka Puuhonua (native), issued each Friday, Akaiko Akana, Editor.

O Luso (Portuguese), issued weekly on Saturdays. A. H. R. Viera, Editor.

Chee Yow Shin Bo (The Liberty News), tri-weekly, Chinese.

Sun Chung Kwock Bo, tri-weekly. Chinese.

Hawaii Shinpo, issued daily in Japanese. H. Tsurushima, Editor.

The Daily Nippu Jiji, Y. Soga, Editor, issued by the Nippu Jiji Co., Ltd.

Hilo Daily Tribune, issued by the Tribune Pub. Co., Timothy Hardy, Editor.

The Daily Post-Herald, issued at Hilo by the Post-Herald, Ltd. V. L. Stevenson, Editor.

The Kohala Midget, issued each Thursday, at Kohala. Editor.

The Maui News, issued weekly at Wailuku, Maui. Wm. J. Cooper, Editor.

The Weekly Times, Wailuku, Maui, issued on Tuesday, A. V. Vetleson, Publisher.

The Garden Island, issued weekly at Lihue, Kauai. K. C. Hopper, Managing Editor.

Hoku o Hawaii, issued on Friday of each week, at Hilo. Rev. S. L. Desha, Editor.

THE HAWAIIAN ANNUAL, issued the latter part of December for the following year. Thos. G. Thrum, Editor and Publisher.

HONOLULU LODGES, ETC.

Lodge le Progres de l'Oceanie No. 371, F. & A. M.; meets on the last Monday in each month in Masonic hall.

Hawaiian Lodge, No. 21, F. & A. M.; meets in its Hall, Masonic Temple, corner Hotel and Alakea streets, on the first Monday in each month.

Honolulu Chapter, No. 1, R. A. M.; meets in Masonic Hall on the third Thursday of each month.

Honolulu Commandery, No. 1, Knights Templar; meets in Masonic Hall on second Thursday of each month.

Mystic Shrine, Aloha Temple. No stated time of meeting. Meets at Masonic Hall.

Kamehameha Lodge of Perfection, No. 1, A. & A. S. R.; meets in Masonic Hall on the fourth Thursday of each month.

Nuuanu Chapter of Rose Croix, No. 1, A. & A. S. R.; meets in Masonic Hall on the first Thursday in the month.

Alexander Liholiho Council, No. 1, of Kadosh; meets on the third Monday of alternate months from February.

Honolulu Lodge, No. 409, F. & A. M.; meets at Masonic Hall every second Monday of the month.

Leahi Chapter, No. 2, Order of the Eastern Star; meets on third Monday of each month in Masonic Hall.

Lei Aloha Chapter, No. 3, Order of the Eastern Star; meets on second Saturday of each month in Masonic Temple.

Harmony Chapter, No. 4, Order of the Eastern Star, meets on third Saturday of each month in Masonic Temple, at 7:30 p. m.

Excelsior Lodge, No. 1, I. O. O. F.; meets at the hall in Odd Fellows' Building, on Fort St., every Tuesday evening.

Harmony Lodge, No. 2, I. O. O. F.; meets each Monday evening in Odd Fellows' Building, Fort street.

Pacific Degree Lodge, No. 1, Daughters of Rebekah; meets in Odd Fellows' Building, Fort street, second and fourth Thursdays of each month.

Olive Branch Rebekah, No. 2, I. O. O. F.; meets first and third Thursdays each month in Odd Fellows' Building.

Polynesian Encampment, No. 1, I. O. O. F.; meets in Odd Fellows' Building, Fort street, first and third Fridays of each month.

Canton Oahu, No. 1, P. M., I. O. O. F.; meets second Friday each month in Odd Fellows' Hall, Fort St.

Mystic Lodge, No. 2, K. of P.; meets every Friday evening at Pythian Hall, cor. Beretania and Fort streets.

Section N. 225—Endowment Rank, K. of P.; meets on the second Saturday of January, July and December in Pythian Hall.

Honolulu Temple, No. 1, Rathbone Sisters; meets in Pythian Hall, first and third Tuesday evenings of each month.

Wm. McKinley Lodge, No. 8, K. of P.; meets first and third Tuesday evenings in Pythian Hall.

Hawaiian Tribe, No. 1, I. O. Red Men; meets on first and third Thursdays of each month at Odd Fellows' Hall.

Court Lunailo No. 6600, A. O. of Foresters; meets at K. of P. Hall on first and third Wednesdays of each month.

Court Camoes No. 8110, A. O. F.; meets second and fourth Tuesday evenings of month in San Antonio Hall.

Theo. Roosevelt Camp, No. 1, Dept. of Hawaii, U. S. W. V.; first and third Saturdays, in their hall.

Honolulu Nest No. 1766, Order of Owls.; meets on the second and fourth Tuesdays of each month at 7:30 p. m. in Phoenix Hall. Visiting Owls are requested to attend.

Capt. Cook Lodge, No. 353, Order Sons of St. George; meets at Pythian Hall every Thursday evening.

Court Hawaii, No. 3769, Independent Order of Foresters, meets third Monday of each month.

Damien Council, Young Men's Institute; meets second and fourth Wednesdays of each month at Catholic Mission Hall.

Honolulu Lodge, B. P. O. Elks, 616; meets every Friday evening in the Elks' Building, King street near Fort.

Honolulu Aerie, No. 140, Fraternal Order of Eagles, meets second and fourth Wednesdays each month in K. of P. Hall.

Honolulu Lodge No. 1, Modern Order of Phoenix; meets every Thursday evening at their home, cor. Fort and Beretania.

Honolulu Lodge, L. O. O. M., No. 800, meets second and fourth Thursdays of the month in Pythian Hall.

American Association of Masters and Pilots of Steam Vessels, Honolulu Harbor, No. 54; meets first Sunday of each month at 7 p. m. in Odd Fellows' Hall.

Marine Engineers' Beneficial Association No. 100; meets every second and fourth Monday nights at K. of P. Hall.

Kamehameha Lodge (native); meets last Thursday of each month in Odd Fellows' Hall.

Kauikaouli Lodge, No. 1 (native); meets on first and third Fridays each month in San Antonio Hall.

PLACES OF WORSHIP.

Central Union Church, Congregational, cor. Beretania and Richards streets; Rev. A. W. Palmer, Minister, Rev. C. A. Spaulding, associate minister. Services every Sunday at 11 a. m. and 7:30 p. m. Sunday school meets one hour before morning service. Prayer meeting Wednesday evenings at 7:30.

Kalihi Union Church, King street, Kalihi; W. B. Coale, A.B., pastor. Sunday school at 9:45 a. m. Gospel services at 11 a. m. and 8 p. m.

Methodist Episcopal Church, corner Beretania and Victoria streets; Rev. L. L. Loofbourow, pastor. Sunday services 11 a. m. and 7:30 p. m. Sunday school meets at 10 a. m. Prayer meeting Wednesdays at 7:30 p. m.

The Christian Church, Kewalo street. David Carey Peters, pastor. Sunday services at 11 a. m. and 7:30 p. m. Sunday school meets at 9:45 a. m. Prayer meeting Wednesday evenings, at 7:30.

Salvation Army, services held nightly at hall, 69 Beretania St., with Sunday services at the usual hour.

Roman Catholic Church, Fort street, near Beretania; Rt. Rev. Libert Boeynaems, Bishop of Zeugma. Services every Sunday at 10 a. m. and 4:30 p. m. Low mass every day at 6 and 7 a. m. High mass Sundays and Saints' days at 10 a. m.

St. Andrew's Cathedral, Protestant Episcopal; entrance from Emma street, near Beretania. Rt. Rev. Henry Bond Restarick, Bishop of the Missionary District of Honolulu; Rev. Wm. Ault, Vicar. Holy Communion, 7; Sunday school, 10; morning prayer, litany and sermon, 11; Hawaiian service, 3:30; evening prayer and sermon, 7:30.

Chinese Congregation. Rev. Kong Yin Tet, Curate. Services on Sunday at 11 a. m. and 7:30 p. m. Evening prayer every Wednesday at 7 p. m.

St. Clement's Chapel, Punahou. Services on Sundays. Holy Communion, 7 a. m. Morning prayer, 11 a. m.; evening prayer, 7:30 p. m. Rev. John Osborne, rector; Rev. C. H. Tracy, vicar.

Epiphany Mission, Kaimuki, Rev. F. B. Eteson, priest in charge. Sunday services at 7:30 and 11 a. m. Sunday school at 10.

First Church of Christ, Scientist, cor. Wilder and Kewalo streets. Sunday services 11 a. m. Sunday school at 9:45.

Christian Chinese Church, Fort street; Rev. Tse Kel Yuen, acting pastor. Services every Sunday at 10:30 a. m. and 7:30 p. m. Prayer meeting Wednesdays at 7:30 p. m.

German Lutheran Church, Beretania St.; Dr. A. Hoermann, pastor. Services on Sunday at 11 a. m.; Sunday school at 10 a. m.

Portuguese (Protestant) Mission; Rev. A. V. Soares, pastor. Services every Sabbath at the usual hour. Sunday school at 3 p. m. Chapel situated corner of Punchbowl and Miller streets.

Reorganized Church of Jesus Christ, Chapel on King street, near Thomas Square; Sunday school at 10 a. m.; preaching in Hawaiian at 11 a. m.; in English at 7:30 p. m.

Seventh Day Adventists; Rev. F. H. Conway, pastor, Chapel, 767 Kinau street. Sabbath school Saturdays at 10 a. m.; preaching at 11. Wednesday prayer and missionary meeting at 7:30 p. m.

Japanese Union Church (connected with Hawaiian Board Missions); Rev. T. Hori, pastor. Hold services at 10 a. m. Preaching at 11 a. m. and 7:30 p. m. Sunday services. Prayer and praise meeting Wednesdays at 7 p. m.

Korean Methodist Church, Rev. H. J. Song, pastor; Punchbowl St. near Beretania. Services at usual hours.

Japanese Methodist Church. Rev. C. Nakamura, pastor. Hold services in chapel on River street, near St. Louis College.

Japanese Church, cor. Kinau and Pensacola Sts., Rev. T. Okumura, pastor; hold regular services at the usual hours.

Bishop Memorial Chapel, Kamehameha Schools, Rev. E. E. Youtz, Chaplain. Morning services at 11.

NATIVE CHURCHES.

Kawaiahao Church, cor. King and Punchbowl streets; Rev. Akaiko Akana, pastor. Services in Hawaiian every Sunday at 11 a. m. and 7:30 p. m. Sunday school at 10 a. m. Prayer meeting Wednesdays at 7:30 p. m.

Kaumakapili Church, King street, Palama. Rev. H. K. Poepoe, pastor; Rev. S. K. Kamaipili, assistant. Sunday services at the usual hours.

COUNTY OFFICIALS.

CITY AND COUNTY OF HONOLULU.

Mayor.....Joseph J. Fern
Sheriff.....Chas. H. Rose
Clerk.....D. Kalauokalani
Auditor.....Jas. Bicknell
Treasurer.....D. L. Conkling
City and County Attorney..A. M. Brown
Supervisors—Wm. Ahia, Chas. N. Arnold, C. H. Bellina, Ben Hollinger, W. H. McClellan, E. A. Mott-Smith, Lester Petrie.

County Engineer.....A. S. Cantin
Chief Engineer Fire Dept.—Chas. H. Thurston.

Asst. Engineer Fire Dept. — Wm. Blaisdell.

Supt. Electric Light Dept. and Police and Fire Alarm System—W. L. Frazee.

1st Deputy County Attorney—A. M. Cristy.

2nd Deputy County Attorney—Chas. A. Davis.

Prosecuting Attorney, Police Court—C. F. Chillingworth.

Bandmaster Hawaiian Band—Robert H. Baker.

Supt. Public Parks—W. R. Hobby.

COUNTY OF MAUI.

Sheriff.....Clement Crowell
Auditor.....E. R. Bevans
Clerk.....Charles Wilcox
Treasurer.....L. M. Baldwin
Clerk.....W. F. Kaee
Supervisors—S. E. Kalama, chairman; D. T. Fleming, R. A. Drummond, P. Cockett, J. N. Uahinui.

COUNTY OF HAWAII.

Sheriff.....Samuel K. Pua
Auditor.....S. M. Spencer
Clerk.....Archibald Hapai
Attorney.....W. H. Beers
Treasurer.....Chas. Swain
Physician.....C. L. Stow
Supervisors—S. Kauhane, chairman; J. R. Yates, A. M. Cabrinha, E. H. Lyman, W. A. Todd, Jas. Ako, A. A. Akana.

COUNTY OF KAUAI.

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Auditor.....Carl Maser
Clerk.....J. M. Kaneakua
Attorney.....S. K. Kaao
Treasurer.....A. G. Kaulukou
Supervisors—Waimea, Th. Brandt; Koloa, W. D. McBryde; Lihue, H. D. Wisharu; Kawaihau, J. F. Bet-tencourt; Hanalei, A. Menefoglio.

FEDERAL OFFICIALS.

DEPARTMENT OF JUSTICE. U. S. DISTRICT COURT.

Hon. H. W. Vaughn } Judges U. S.
J. B. Poindexter } Dist. Court
S. C. Huber.....U. S. Attorney
J. J. Banks.....Asst. U. S. Attorney
J. J. Smiddy.....U. S. Marshal
O. F. Heine..Office Dep. U. S. Marshal

C. J. Laval.....
.....Asst. Office Dep. U. S. Marshal
A. E. Harris.....Clerk
Wm. L. Rosa.....Deputy Clerk
Geo. S. Curry, F. J. H. Schnack.....
.....U. S. Commissioners
H. L. Grace.....Referee in Bankruptcy
J. A. M. Osorio....U. S. Comsnr., Hilo
R. T. Forrest.....Referee, Hilo

C. D. Lufkin.....Referee, Kahului
 Regular Terms:—At Honolulu on the
 second Monday in April and October.
 Special Terms:—May be held at such
 times and places in the district as
 the Judge may deem expedient.
 Misses A. L. Winchester, Margaret
 Rawley.....Clerks, U. S. Attorney
 H. F. Neitert.....U. S. Court Reporter
 Mrs. Sara Holland—Secretary to U.
 S. District Judges.
 U. S. Jury Commissioners—A. E. Har-
 ris, W. H. Smith.

TREASURY DEPARTMENT. CUSTOMS DIVISION.

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 Raymer Sharp—Special Deputy Col-
 lector and Chief Examiner.
 A. B. Ingalls.....Examiner and Gauger
 John W. Short.....Chief Liquidating Clerk
 W. D. Wilder.....Dep. Col. and Cashier
 F. L. Beringer, R. H. Bemrose, E. H.
 Boyen, C. J. Cooper, R. Frieders-
 dorff.....Examiners
 J. B. Gibson, P. M. Naluai, M. J.
 Scanlan, Jas. I. Arcia.....
Deputy Collector and Clk.
 E. E. Miller, M. G. Johnston, Geo. W.
 Lucas, R. K. Brown, E. S. Mc-
 Grew.....Clerks
 E. D. Ferreira.....Stenog. and Typewriter
 R. J. Taylor.....
Dep. Coll. and Insp. in Chge.
 C. A. Hills.....Clerk
 E. A. K. Williams.....Clerk
 John A. Akana.....Night Ins.
 D. C. Lindsay.....Dep. Collector, Kahului
 W. V. Kolb.....Dep. Collector, Hilo
 E. Madden.....Dep. Collector, Mahukona
 G. B. Leavitt.....Dep. Collector, Koloa

INTERNAL REVENUE OFFICE.

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 W. G. Ashley, Jr.....Chief Deputy
 Lee Sing.....Stamp Cashier
 E. K. Kekuewa.....Asst. Stamp Cashier
 Beatrice M. Sorenson, Minnie Rude-
 beck, Adelaide Laval, Margaret
 McCarthy.....Deputy Colls.
 F. S. Hishimoto.....Messenger
 F. C. Hapai.....Chief Field Deputy
 Clara C. Dodd, W. N. Hauna, J. S.
 Mackenzie.....Division Deputies
 August S. Costa (Hilo).....
Stamp and Div. Deputy
 A. P. Helbush (Hilo).....
Asst. Stamp and Div. Deputy

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 B. B. Brown.....Act. Inspector in Charge
 Edwin Farmer, J. L. Milligan, Inspectrs.
 Chas. T. Howard, Hazel G. Cunning-
 ham.....Clerks
 Tomizo Katsunuma, C. Tajima.....
Japanese Interpreters
 Hee Kwong.....Chinese Interpreter
 Mrs. Y. Watanabe.....Matron

DEPARTMENT OF AGRICULTURE. U. S. WEATHER BUREAU.

L. H. Daingerfield.....Meteorologist
 Wm. W. Wyatt, Carl A. Reichelt..
Asst. Observers

U. S. Magnetic Station

Frank Neumann.....Observer

HAWAII EXPERIMENT STATION.

J. M. Westgate...Agronomist in Charge
 J. E. Higgins.....Horticulturist
 M. O. Johnson.....Chemist
 C. W. Carpenter.....Plant Pathologist
 F. G. Krauss.....Supt. Extension Work
 R. A. Goff.....Asst. Agronomist
 In Charge Glenwood Substation.
 H. L. Chung.....Asst. Chemist
 C. A. Sahr.....Asst. Agronomist
 J. H. Cowan.....Asst. Horticulturist
 L. M. Ross.....Executive Clerk
 E. J. Mooklar.....Asst. in Food Work

PUBLIC HEALTH, UNITED STATES SERVICE.

F. E. Trotter, Surgeon, U. S. P. H. S.,
 Chief Quarantine Officer.
 L. E. Hooper, P. S. Surgeon, U. S. P.
 H. S.
 A. N. Sinclair, Acting Assistant Sur-
 geon U. S. P. H. S.
 W. F. James, Asst. Surg., U. S. P. H. S.
 G. I. Van Ness, Pharmacist U.S.P.H.S.
 Emma F. Smith, Med. Insp., U.S.P.H.S.
 L. L. Sexton, Act. Asst. Surgeon, U. S.
 P. H. S., Hilo, Hawaii, T. H.
 Wm. Osmer, Act. Asst. Surgeon, U. S.
 P. H. S., Kahului, Maui, T. H.
 Franklin Burt, Act. Asst. Surg., U. S.
 P. H. S., Lahaina, Maui, T. H.
 A. H. Waterhouse, Act. Asst. Surgeon,
 U.S.P.H.S., Koloa, Kauai, T. H.
 B. D. Bond, Act. Asst. Surgeon, U. S. P.
 H. S., Mahukona, Hawaii, T. H.

WAR DEPARTMENT.

U. S. ARMY.

Engineer Department.

Colonel R. R. Raymond, Corps of En-
 gineers, U. S. Army, in charge of
 works for defense of Honolulu and
 Pearl Harbor, and of the improvement
 of Honolulu, Hilo and Kahului
 Harbor.
 Capt. S. H. Ware, Corps of Engrs.,
 Asst. to Dist. Engr. Officer.
 S. F. Burbank, Richard Quinn, Assist-
 ant Engineers.
 A. K. Shepard, Chief Clerk.
 F. M. Bechtel, S. M. Temple, Geo. K.
 Mills, Daniel S. Pahu, Clerks.
 A. V. Hayes, Receiver of Materials.

NAVY DEPARTMENT

OFFICERS ATTACHED TO 14th NAVAL DISTRICT.

Rear Admiral Robert M. Doyle, Commandant.

Ensign A. P. Haynes, Aid to Comdt.

Lieut.-Comdr. W. H. Stroud, Captain of the Yard.

Boatsw. Edward Burnett, U.S.N., Yard Boatswain.

Comdr. Geo. A. McKay, U.S.N., Public Works Officer; Lieut. R. L. Martin, U.S.N., Ensign R. J. Strasser, U.S.N.R.F., Assts.

Lieut. D. Corey, U.S.N., Surgeon.

Lt.-Comdr. R. E. Carney, U.S.N. (ret.), Engr. Officer; Lieut. (jg) Geo. H. Paul, U.S.N.R.F., Ensign J. S. Philbrick, U.S.N.R.F., Ensign Frank H. Wight, U.S.N.R.F., Assts.

Lieut. E. L. Kempton, U.S.N., Construction Officer; Carpenter Martin R. Aden, U.S.N., Asst.

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HAWAIIAN ALMANAC AND ANNUAL

FOR

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THE REFERENCE BOOK OF INFORMATION AND STATISTICS

Relating to the Territory of Hawaii, of Value to
Merchants, Tourists and Others

THOS. G. THRUM

Compiler and Publisher

Forty-Sixth Year of Publication

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HONOLULU

December, 1919

Counting House

1920 Calendar 1920

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY		SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
JAN.	4	5	6	7	1	2	3	JULY	4	5	6	7	1	2	3
	11	12	13	14	15	16	17		11	12	13	14	15	16	17
	18	19	20	21	22	23	24		18	19	20	21	22	23	24
	25	26	27	28	29	30	31		25	26	27	28	29	30	31
FEB.	1	2	3	4	5	6	7	AUG.	1	2	3	4	5	6	7
	8	9	10	11	12	13	14		8	9	10	11	12	13	14
	15	16	17	18	19	20	21		15	16	17	18	19	20	21
	22	23	24	25	26	27	28		22	23	24	25	26	27	28
	29	..	..	..	..	..	..		29	30	31	..	..	..	..
MAR.	7	1	2	3	4	5	6	SEPT.	5	6	7	1	2	3	4
	14	8	9	10	11	12	13		12	13	14	8	9	10	11
	21	15	16	17	18	19	20		19	20	21	15	16	17	18
	28	22	23	24	25	26	27		26	27	28	22	23	24	25
APR.	..	29	30	31	..	..	..	OCT.	..	..	..	..	..	1	2
	4	5	6	7	8	9	10		3	4	5	6	7	8	9
	11	12	13	14	15	16	17		10	11	12	13	14	15	16
	18	19	20	21	22	23	24		17	18	19	20	21	22	23
	25	26	27	28	29	30	..		24	25	26	27	28	29	30
MAY	..	..	..	..	..	1	..	NOV.	31	..	..	..	..	..	..
	2	3	4	5	6	7	8		..	1	2	3	4	5	6
	9	10	11	12	13	14	15		7	8	9	10	11	12	13
	16	17	18	19	20	21	22		14	15	16	17	18	19	20
	23	24	25	26	27	28	29		21	22	23	24	25	26	27
	30	31	..	..	..	..	..		28	29	30	..	..	..	..
JUNE	..	..	1	2	3	4	5	DEC.	..	..	..	1	2	3	4
	6	7	8	9	10	11	12		5	6	7	8	9	10	11
	13	14	15	16	17	18	19		12	13	14	15	16	17	18
	20	21	22	23	24	25	26		19	20	21	22	23	24	25
	27	28	29	30	..	..	..		26	27	28	29	30	31	..

Thos. G. Thrum

RESEARCHER AND PUBLISHER

The Hawaiian Annual

HONOLULU, HAWAII

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HAWAIIAN ANNUAL CALENDAR FOR 1920.

Second half of the twenty-second year and first half of the twenty-third year since annexation of Hawaii with the United States.

Twenty-fifth year since the downfall of the Monarchy.

The 142d year since the discovery of the Hawaiian Islands by Captain Cook.

One hundredth year since the arrival of the American Mission.

Holidays Observed at the Hawaiian Islands.

*New Year-----	Jan. 1	*American Anniversary ----	July 4
Chinese New Year -----	Feb. 20	Labor Day (1st Monday)-----	Sept. 6
Lincoln's Birthday -----	Feb. 12	*Regatta Day (3d Saturday)---	-----
*Washington's Birthday-----	Feb. 22	-----	Sept. 18
*Decoration Day -----	May 30	*Victory Day -----	Nov. 11
Kamehameha Day -----	June 11	Thanksgiving Day -----	Nov. 25
*Birthday Hawn. Republic-----	July 4	*Christmas Day -----	Dec. 25

* Those distinguished by the asterisk have been established by law.

Church Days.

Epiphany -----	Jan. 6	Ascension Day -----	May 13
Ash Wednesday -----	Feb. 18	Whit Sunday -----	May 23
First Sunday in Lent-----	Feb. 22	Trinity Sunday -----	May 30
Palm Sunday -----	Mch. 28	Corpus Christi -----	June 3
Good Friday -----	Apl. 2	Advent Sunday -----	Nov. 28
Easter Sunday -----	Apl. 4	Christmas -----	Dec. 25

Eclipses in 1920.

Courtesy of J. S. Donaghho, College of Hawaii.

In 1920 there will be four eclipses, two of the sun and two of the moon.

I. A total eclipse of the moon, May 2, invisible in Hawaii.

II. A partial eclipse of the sun, May 17, invisible in Hawaii.

III. A total eclipse of the moon, October 26, visible in Hawaii, as follows:

Beginning of eclipse-----2:59 a.m.

Middle of eclipse-----3:41 a.m.

End of eclipse-----4:24 a.m.

IV. A partial eclipse of the sun, November 10, invisible in Hawaii.

PHENOMENA.

Mercury will be visible in the evening about March 3, June 28 and October 24: in the morning about April 16, August 14 and December 2. He may become visible eight or ten days before these dates, and remain so for three or four days after.

Venus will remain morning star until July 3, and will be evening star for the rest of the year. She will be seen fairly close to the moon on the evening of October 13.

Mars will rise in the early evening by the end of March, and will be almost as bright as Sirius by that time. He will be nearest the earth on April 27, and in conjunction with the moon April 4, June 24, July 22.

FIRST QUARTER, 1920

JANUARY					FEBRUARY					MARCH				
D.		H. M.			D.		H. M.			D.		H. M.		
5	Full Moon	10.34.9 a.m.			3	Full Moon	10.12.4 p.m.			4	Full Moon	10.42.6 a.m.		
12	Last Quar.	1.38.6 p.m.			11	Last Quar.	10.19.2 a.m.			12	Last Quar.	7.27.4 a.m.		
20	New Moon	6.56.9 p.m.			19	New Moon	11.04.8 a.m.			20	New Moon	0.25.8 a.m.		
28	First Quar.	5.08.0 a.m.			26	First Quar.	1.19.5 p.m.			26	First Quar.	8.15.1 p.m.		
Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....		Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....		Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....	
		H. M.	H. M.				H. M.	H. M.				H. M.	H. M.	
1	Thurs	6 37 95	29 5		1	SUN.	6 37 75	50 0		1	Mon..	6 21 16	4 2	
2	Fri...	6 38 25	30 1		2	Mon..	6 37 45	50 6		2	Tues..	6 20 36	4 7	
3	Sat...	6 38 55	30 8		3	Tues..	6 37 05	51 3		3	Wed..	6 19 56	5 0	
4	SUN.	6 38 75	31 4		4	Wed..	6 36 65	51 9		4	Thurs	6 18 76	5 4	
5	Mon..	6 38 95	32 1		5	Thurs	6 36 25	52 5		5	Fri...	6 17 96	5 8	
6	Tues..	6 39 15	32 8		6	Fri...	6 35 75	53 1		6	Sat...	6 17 06	6 2	
7	Wed..	6 39 35	33 4		7	Sat...	6 35 35	53 7		7	SUN.	6 16 26	6 6	
8	Thurs	6 39 55	34 1		8	SUN.	6 34 85	54 2		8	Mon..	6 15 46	6 9	
9	Fri...	6 39 75	34 8		9	Mon..	6 34 35	54 8		9	Tues..	6 14 56	7 3	
10	Sat...	6 39 95	35 5		10	Tues..	6 33 85	55 3		10	Wed..	6 13 76	7 7	
11	SUN.	6 40 15	36 2		11	Wed..	6 33 35	55 8		11	Thurs	6 12 86	8 0	
12	Mon..	6 40 25	36 9		12	Thurs	6 32 85	56 3		12	Fri...	6 11 96	8 4	
13	Tues..	6 40 35	37 5		13	Fri...	6 32 25	56 8		13	Sat...	6 11 06	8 7	
14	Wed..	6 40 45	38 2		14	Sat...	6 31 65	57 3		14	SUN.	6 10 16	9 0	
15	Thurs	6 40 45	38 9		15	SUN.	6 31 05	57 9		15	Mon..	6 9 26	9 3	
16	Fri...	6 40 45	39 6		16	Mon..	6 30 45	58 4		16	Tues..	6 8 36	9 7	
17	Sat...	6 40 45	40 3		17	Tues..	6 29 85	58 9		17	Wed..	6 7 46	10 0	
18	SUN.	6 40 45	40 9		18	Wed..	6 29 15	59 4		18	Thurs	6 6 56	10 3	
19	Mon..	6 40 35	41 6		19	Thurs	6 28 55	59 9		19	Fri...	6 5 66	10 6	
20	Tues..	6 40 35	42 3		20	Fri...	6 27 86	0 4		20	Sat...	6 4 76	10 9	
21	Wed..	6 40 25	43 0		21	Sat...	6 27 16	0 9		21	SUN.	6 3 86	11 2	
22	Thurs	6 40 15	43 6		22	SUN.	6 26 56	1 3		22	Mon..	6 2 96	11 6	
23	Fri...	6 39 95	44 3		23	Mon..	6 25 86	1 7		23	Tues..	6 2 06	11 9	
24	Sat...	6 39 85	45 0		24	Tues..	6 25 16	2 1		24	Wed..	6 1 16	12 2	
25	SUN.	6 39 65	45 6		25	Wed..	6 24 46	2 5		25	Thurs	6 0 16	12 5	
26	Mon..	6 39 45	46 3		26	Thurs	6 23 76	2 9		26	Fri...	5 59 26	12 8	
27	Tues..	6 39 25	46 9		27	Fri...	6 23 06	3 7		27	Sat...	5 58 36	13 1	
28	Wed..	6 39 05	47 5		28	Sat...	6 22 36	3 5		28	SUN.	5 57 36	13 4	
29	Thurs	6 38 75	48 1		29	SUN.	6 21 66	3 8		29	Mon..	5 56 46	13 7	
30	Fri...	6 38 45	48 8							30	Tues..	5 55 56	14 0	
31	Sat...	6 38 05	49 4							31	Wed..	5 54 66	14 4	

VOLCANO OF KILAUEA, ISLAND OF HAWAII.

Corrected for Deflection of the Vertical.

Area, 4.14 square miles, or 2,650 acres.

Circumference, 41,500 feet, or 7.85 miles.

Extreme width, 10,300 feet, or 1.95 miles.

Extreme length, 15,500 feet, or 2.93 miles.

Elevation, Volcano House, 4,000 feet.

SECOND QUARTER, 1920

APRIL				MAY				JUNE			
D.	H. M.			D.	H. M.			D.	H. M.		
3	Full Moon. 0.24.7 a.m.			2	Full Moon 3.17.3 p.m.			1	Full Moon 6.48.2 a.m.		
11	Last Quar. 2.54.2 a.m.			10	Last Quar. 7.21.0 p.m.			9	Last Quar. 8.28.5 a.m.		
18	New Moon 11.13.1 a.m.			17	New Moon 7.55.2 p.m.			16	New Moon 3.11.3 a.m.		
25	First Quar. 2.57.5 a.m.			24	First Quar. 10.37.2 a.m.			22	First Quar. 8.19.5 a.m.		
								30	Full Moon 10.10.7 p.m.		
Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....	Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....	Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....
		H. M.	H. M.			H. M.	H. M.			H. M.	H. M.
1	Thurs	5 53 76	14 7	1	Sat...	5 29 56	24 9	1	Tues..	5 17 36	37 8
2	Fri...	5 52 86	15 0	2	SUN..	5 28 86	25 2	2	Wed...	5 17 26	38 2
3	Sat...	5 51 96	15 3	3	Mon..	5 28 26	25 6	3	Thurs	5 17 26	38 6
4	SUN..	5 51 06	15 6	4	Tues..	5 27 66	26 0	4	Fri...	5 17 16	39 0
5	Mon..	5 50 16	16 0	5	Wed..	5 27 06	26 4	5	Sat...	5 17 06	39 4
6	Tues..	5 49 26	16 3	6	Thurs	5 26 46	26 8	6	SUN..	5 17 06	39 8
7	Wed..	5 48 36	16 6	7	Fri...	5 25 86	27 2	7	Mon...	5 17 06	40 1
8	Thurs	5 47 46	16 9	8	Sat...	5 25 36	27 6	8	Tues..	5 17 06	40 5
9	Fri...	5 46 56	17 2	9	SUN..	5 24 76	28 0	9	Wed...	5 16 96	40 9
10	Sat...	5 45 66	17 5	10	Mon..	5 24 36	28 5	10	Thurs	5 16 96	41 2
11	SUN..	5 44 86	17 8	11	Tues..	5 23 86	28 9	11	Fri...	5 17 06	41 5
12	Mon..	5 44 06	18 1	12	Wed..	5 23 46	29 3	12	Sat...	5 17 16	41 9
13	Tues..	5 43 26	18 4	13	Thurs	5 22 96	29 8	13	SUN..	5 17 26	42 2
14	Wed..	5 42 36	18 8	14	Fri...	5 22 46	30 2	14	Mon...	5 17 36	42 5
15	Thurs	5 41 56	19 1	15	Sat...	5 22 06	30 6	15	Tues..	5 17 56	42 8
16	Fri...	5 40 76	19 4	16	SUN..	5 21 66	31 0	16	Wed...	5 17 66	43 1
17	Sat...	5 39 96	19 8	17	Mon..	5 21 26	31 4	17	Thurs	5 17 76	43 4
18	SUN..	5 39 06	20 1	18	Tues..	5 20 86	31 9	18	Fri...	5 17 96	43 6
19	Mon..	5 38 26	20 5	19	Wed..	5 20 56	32 3	19	Sat...	5 18 06	43 9
20	Tues..	5 37 46	20 8	20	Thurs	5 20 26	32 7	20	SUN..	5 18 26	44 1
21	Wed..	5 36 66	21 2	21	Fri...	5 19 86	33 1	21	Mon...	5 18 46	44 4
22	Thurs	5 35 86	21 5	22	Sat...	5 19 56	33 6	22	Tues..	5 18 66	44 6
23	Fri...	5 35 06	21 9	23	SUN..	5 19 26	34 0	23	Wed...	5 18 86	44 7
24	Sat...	5 34 36	22 3	24	Mon..	5 18 86	34 5	24	Thurs	5 19 16	44 9
25	SUN..	5 33 66	22 6	25	Tues..	5 18 56	34 9	25	Fri...	5 19 46	45 1
26	Mon..	5 32 96	23 0	26	Wed..	5 18 36	35 4	26	Sat...	5 19 66	45 2
27	Tues..	5 32 26	23 3	27	Thur..	5 18 16	35 8	27	SUN..	5 19 96	45 4
28	Wed..	5 31 46	23 7	28	Fri...	5 17 96	36 2	28	Mon...	5 20 26	45 5
29	Thurs	5 30 86	24 1	29	Sat...	5 17 76	36 6	29	Tues..	5 20 56	45 6
30	Fri...	5 30 16	24 5	30	SUN..	5 17 56	37 0	30	Wed...	5 20 86	45 7
				31	Mon..	5 17 46	37 4				

MOKUAWEOWEO.

The Summit Crater of Mauna Loa, Island of Hawaii.

Area, 3.70 square miles, or 2,370 acres.

Circumference, 50,000 feet, or 9.47 miles.

Length, 19,500 feet, or 3.7 miles.

Width, 9,20 feet, or 1.74 miles. Elevation of summit, 13,675 feet.

THIRD QUARTER, 1920

JULY				AUGUST				SEPTEMBER			
D.		H. M.		D.		H. M.		D.		H. M.	
8 Last Quar.		6 35.6 p.m.		7 Last Quar.		2 20.7 a.m.		5 Last Quar.		8 34.9 a.m.	
15 New Moon		9 55.0 a.m.		13 New Moon		5 13.9 p.m.		12 New Moon		2 21.7 a.m.	
22 First Quar.		8 50.4 a.m.		20 First Quar.		0 21.8 p.m.		19 First Quar.		6 25.2 p.m.	
30 Full Moon		0 49.3 p.m.		29 Full Moon		2 32.8 a.m.		27 Full Moon		3 26.6 p.m.	
Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....	Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....	Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....
		H. M.	H. M.			H. M.	H. M.			H. M.	H. M.
1	Thurs	5 21 16	45 8	1	SUN.	5 32 96	39 0	1	Wed..	5 43 26	16 6
2	Fri...	5 21 46	45 8	2	Mon..	5 33 06	38 5	2	Thurs	5 43 46	15 7
3	Sat...	5 21 76	45 9	3	Tues.	5 33 76	38 0	3	Fri...	5 43 76	14 8
4	SUN.	5 22 16	45 8	4	Wed..	5 34 16	37 4	4	Sat...	5 43 96	13 9
5	Mon..	5 22 46	45 8	5	Thurs	5 34 46	36 9	5	SUN.	5 44 26	13 0
6	Tues.	5 22 86	45 8	6	Fri...	5 34 86	36 3	6	Mon..	5 44 56	12 0
7	Wed..	5 23 16	45 8	7	Sat...	5 35 26	35 7	7	Tues.	5 44 76	11 1
8	Thurs	5 23 56	45 8	8	SUN.	5 35 76	35 1	8	Wed..	5 45 06	10 2
9	Fri...	5 23 86	45 7	9	Mon..	5 35 96	34 5	9	Thurs	5 45 36	9 2
10	Sat...	5 24 26	45 6	10	Tues.	5 36 36	33 8	10	Fri...	5 45 56	8 3
11	SUN.	5 24 56	45 5	11	Wed..	5 36 66	33 2	11	Sat...	5 45 86	7 3
12	Mon..	5 24 96	45 4	12	Thurs	5 37 06	32 5	12	SUN.	5 46 06	6 4
13	Tues.	5 25 46	45 3	13	Fri...	5 37 36	31 8	13	Mon..	5 46 36	5 4
14	Wed..	5 25 86	45 1	14	Sat...	5 37 76	31 1	14	Tues.	5 46 56	4 4
15	Thurs	5 26 26	44 9	15	SUN.	5 38 06	30 4	15	Wed..	5 46 86	3 5
16	Fri...	5 26 66	44 7	16	Mon..	5 38 36	29 7	16	Thurs	5 47 06	2 5
17	Sat...	5 27 06	44 5	17	Tues.	5 38 76	29 0	17	Fri...	5 47 36	1 6
18	SUN.	5 27 46	44 3	18	Wed..	5 39 06	28 2	18	Sat...	5 47 56	0 6
19	Mon..	5 27 86	44 1	19	Thurs	5 39 36	27 5	19	SUN.	5 47 85	59 7
20	Tues.	5 28 26	43 8	20	Fri...	5 39 66	26 7	20	Mon..	5 48 05	58 7
21	Wed..	5 28 66	43 5	21	Sat...	5 39 96	25 9	21	Tues.	5 48 35	57 8
22	Thurs	5 29 06	43 2	22	SUN.	5 40 36	25 1	22	Wed..	5 48 55	56 8
23	Fri...	5 29 46	42 8	23	Mon..	5 40 66	24 3	23	Thurs	5 48 85	55 9
24	Sat...	5 29 86	42 5	24	Tues.	5 40 96	23 5	24	Fri...	5 49 05	54 9
25	SUN.	5 30 26	42 1	25	Wed..	5 41 26	22 6	25	Sat...	5 49 35	53 9
26	Mon..	5 30 66	41 7	26	Thurs	5 41 46	21 0	26	SUN.	5 49 65	53 0
27	Tues.	5 31 06	41 3	27	Fri...	5 41 76	20 9	27	Mon..	5 49 85	52 1
28	Wed..	5 31 46	40 9	28	Sat...	5 42 06	20 1	28	Tues.	5 50 15	51 1
29	Thurs	5 31 86	40 5	29	SUN.	5 42 36	19 2	29	Wed..	5 50 45	50 2
30	Fri...	5 32 26	40 0	30	Mon..	5 42 66	18 3	30	Thurs	5 50 75	49 2
31	Sat...	5 32 56	39 5	31	Tues.	5 42 96	17 4				

IAO VALLEY, ISLAND OF MAUI.

Length (from Wailuku), about 5 miles.

Width of Valley, 2 miles.

Depth, near head, 4,000 feet.

Elevation of Puu Kukui, above head of Valley, 5,700 feet.

Elevation of Crater of Eke, above Waihee Valley, 4,500 feet.

FOURTH QUARTER, 1920.

OCTOBER				NOVEMBER				DECEMBER			
D.		H. M.		D.		H. M.		D.		H. M.	
4	Last Quar.	2.23.6 p.m.		2	Last Quar.	9.05.0 p.m.		2	Last Quar.	5.59.0 a.m.	
11	New Moon	2.20.4 p.m.		10	New Moon	5.35.1 a.m.		9	New Moon	11.33.9 p.m.	
19	First Quar.	1.59.3 p.m.		18	First Quar.	9.42.8 a.m.		18	First Quar.	4.10.4 a.m.	
27	Full Moon	3.38.9 a.m.		25	Full Moon	3.12.3 p.m.		25	Full Moon	2.08.5 a.m.	
								31	Last Quar.	6.04.7 p.m.	
Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....	Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....	Day of Mo...	Day of Wk...	Sun Rises....	Sun Sets.....
		H. M.	H. M.			H. M.	H. M.			H. M.	H. M.
1	Fri....	5 51 05	48 3	1	Mon..	6 2 85	24 4	1	Wed..	6 20 95	17 2
2	Sat...	5 51 35	47 4	2	Tues.	6 3 35	23 9	2	Thurs	6 21 55	17 3
3	SUN..	5 51 65	46 5	3	Wed..	6 3 85	23 3	3	Fri....	6 22 25	17 4
4	Mon..	5 51 85	45 6	4	Thurs	6 4 35	22 8	4	Sat...	6 22 85	17 5
5	Tues.	5 52 15	44 7	5	Fri....	6 4 95	22 4	5	SUN..	6 23 55	17 7
6	Wed..	5 52 45	43 8	6	Sat...	6 5 45	21 9	6	Mon..	6 24 25	17 9
7	Thurs	5 52 75	42 9	7	SUN..	6 6 05	21 4	7	Tues.	6 24 85	18 1
8	Fri....	5 53 15	42 0	8	Mon..	6 6 55	21 0	8	Wed..	6 25 45	18 4
9	Sat...	5 53 45	41 1	9	Tues.	6 7 15	20 7	9	Thurs	6 26 05	18 7
10	SUN..	5 53 85	40 2	10	Wed..	6 7 65	20 2	10	Fri...	6 26 65	19 0
11	Mon..	5 54 15	39 4	11	Thurs	6 8 25	19 9	11	Sat...	6 27 35	19 3
12	Tues.	5 54 55	38 6	12	Fri....	6 8 95	19 5	12	SUN..	6 27 95	19 6
13	Wed..	5 54 85	37 7	13	Sat...	6 9 55	19 2	13	Mon..	6 28 55	19 9
14	Thurs	5 55 15	36 9	14	SUN..	6 10 15	18 9	14	Tues.	6 29 15	20 3
15	Fri....	5 55 55	36 1	15	Mon..	6 10 75	18 6	15	Wed..	6 29 75	20 6
16	Sat...	5 55 85	35 3	16	Tues.	6 11 35	18 3	16	Thurs	6 30 35	21 0
17	SUN..	5 56 25	34 5	17	Wed..	6 11 95	18 0	17	Fri....	6 30 85	21 5
18	Mon..	5 56 65	33 7	18	Thurs	6 12 55	17 8	18	Sat...	6 31 45	21 9
19	Tues.	5 56 95	32 9	19	Fri....	6 13 15	17 6	19	SUN..	6 31 95	22 3
20	Wed..	5 57 35	32 2	20	Sat...	6 13 75	17 4	20	Mon..	6 32 55	22 8
21	Thurs	5 57 75	31 4	21	SUN..	6 14 35	17 2	21	Tues.	6 33 05	23 3
22	Fri....	5 58 25	30 7	22	Mon..	6 15 05	17 1	22	Wed..	6 33 55	23 8
23	Sat...	5 58 65	30 0	23	Tues.	6 15 75	17 1	23	Thurs	6 34 05	24 3
24	SUN..	5 59 15	29 3	24	Wed..	6 16 35	17 0	24	Fri....	6 34 55	24 8
25	Mon..	5 59 55	28 7	25	Thurs	6 17 05	17 0	25	Sat...	6 35 05	25 3
26	Tues.	6 0 05	28 0	26	Fri...	6 17 65	17 0	26	SUN..	6 35 55	25 9
27	Wed..	6 0 45	27 4	27	Sat...	6 18 25	17 0	27	Mon..	6 35 95	26 5
28	Thurs	6 0 95	26 7	28	SUN..	6 18 95	17 0	28	Tues.	6 36 35	27 0
29	Fri....	6 1 45	26 1	29	Mon..	6 19 65	17 1	29	Wed..	6 36 65	27 6
30	Sat...	6 1 85	25 5	30	Tues.	6 20 25	17 1	30	Thurs	6 37 05	28 2
31	SUN..	6 2 35	24 9					31	Fri....	6 37 35	28 8

HALEAKALA, ISLAND OF MAUI.

The great Crater of Maui, the largest in the world.

Area, 19 square miles, or 12,160 acres.

Circumference, 105,600 feet, or 20 miles.

Extreme width, 2.37 miles. Extreme length, 7.48 miles.

Elevation to summit, 10,032 feet.

Elevation of principal cones in crater, 8,032 and 1,572 feet.

Elevation of cave in floor of crater, 7,380 feet.

INTER-ISLAND DISTANCES BY SEA IN SEA MILES.

AROUND OAHU FROM HONOLULU—ESPLANADE WHARF TO

	Miles.		Miles.
Bell Buoy	1¼	Pearl River Bar.....	6
Diamond Head	5	Barber's Point	15
Koko Head	12	Waiānae Anchorage	26
Makapuu Point	16	Kaena Point, N. W. of Oahu....	36
Mokapu	27	Waialua Anchorage	46
Kahuku North Point.....	48	Kahuku N. Pt., Oahu, via Kaena.	58

HONOLULU TO

Lae o ka Laau, S. W. Pt. Molokai	35	Mahukona, Hawaii.....	134
Kalaupapa, Leper Settlement..	52	Kawaihae, "	144
West Point of Lanai.....	50	Kealahakua, " (direct)	157
Lahaina, Maui.....	72	S. W. Pt. "	233
Kahului, "	90	Punahuu, "	250
Hana, "	128	Hilo, " (direct)	192
Maalaea, "	86	" " (windward).....	206
Makena, "	96	" " (via Kawaihae).....	230

HONOLULU TO

Nawiliwili, Kauai.....	98	Hanalei, Kauai	125
Koloa, "	102	Niihau	144
Waimea, "	120		

LAHAINA, MAUI, TO

Kaluaaha, Molokai	17	Maalaea, Maui	12
Lanai	9	Makena, Maui	18

KAWAIIHAE, HAWAII, TO

Mahukona, Hawaii	10	Hilo, Hawaii	85
Waipio, Hawaii	37	Lae o ka Mano, Hawaii.....	20
Honokaa, Hawaii	45	Kailua, Hawaii	34
Laupahoehoe, Hawaii	62	Kealahakua, Hawaii	44

HILO, HAWAII, TO

East Point of Hawaii.....	20	Punaluu, Hawaii	70
Keauhou, Kau, Hawaii.....	50	Kaalualu, Hawaii	80
North Point of Hawaii.....	62	South Point of Hawaii.....	85

WIDTH OF CHANNELS.

Oahu and Molokai.....	23	Maui and Lanai.....	7
Diamond Head to S. W. Point of Molokai	30	Maui and Kahoolawe.....	6
Molokai and Lanai.....	7	Hawaii and Maui.....	26
Molokai and Maui.....	8	Kauai and Oahu.....	63
		Niihau and Kauai.....	15

OCEAN DISTANCES.

HONOLULU TO

San Francisco	2100	Auckland	3810
San Diego	2260	Sydney	4410
Portland, Or.	2360	Hongkong	4920
Brito, Nicaragua	4200	Yokohama	3400
Panama	4720	Guam	3300
Tahiti	2440	Manila, via N. E. Cape.....	4890
Samoa	2290	Victoria, B. C.....	2460
Fiji	2700	Midway Islands	1200

OVERLAND DISTANCES.

ISLAND OF OAHU.

HONOLULU POST-OFFICE TO

	Miles.		Miles.	Inter.
Bishop's corner (Waikiki).....	3.2	Punaluu	28.4	2.0
Waikiki Villa	3.6	Hauula	31.4	3.0
Diamond Head	5.9	Lale	34.4	3.0
Kaalawai	6.0	Kahuku Mill	37.2	2.8
	Miles. Inter.	Kahuku Ranch	40.0	2.8
Thomas Square	1.0			
Pawaa corners	2.0	Moanalua	3.4	
Kamoliili	3.3	Kalauao	7.4	4.0
Kaimuki Hill Reservoir	5.0	Ewa Church	10.2	2.8
Waialae	6.2	Kipapa	13.6	3.4
Niu	8.8	Kaukonahua	20.0	6.4
Koko Head	11.8	Lellehua	20.0	
Makapuu	14.8	Waialua	28.0	8.0
Waimanalo	20.8	Waimea	32.4	4.4
Waimanalo, via Pali.....	12.0	Kahuku Ranch	39.4	7.0
Nuuanu Bridge	1.1			
Mausoleum	1.5	Ewa Church	10.2	
Electric Reservoir	2.7	Waipio (Brown's)	11.2	1.0
Luakaha	4.3	Hoeae (Robinson's).....	13.5	2.3
Nuuanu Dam	5.0	Barber's Point, L. H.....	21.5	8.0
Pali	6.6	Nanakuli	23.5	2.0
Kaneohe	11.9	Waianae Plantation	29.9	6.4
Waiahole	18.9	Kahanahāiki	36.9	7.0
Kualoa	21.9	Kaena Point	42.0	5.1
Kahana	26.4	Waialua to Kaena Pt.....	12.0	

ISLAND OF HAWAII.

SOUTH KOHALA.—WAIMEA COURT HOUSE, TO

	Miles.	Inter.		Miles.	Inter.
Hamakua boundary ...	4.5	..	Hilo, via Humuula Stn.....	54.0	25.0
Kukuihaele Mill	11.0	6.5	Keamuku Sheep Stn.....	14.0	..
Mana	7.7	..	Napuu	22.0	8.0
Hanaipoe	15.0	7.3	Keawewai	8.0	..
Keanakolu	24.0	9.0	Waika	11.0	3.0
Puakala	34.0	10.0	Kahuwa	13.0	2.0
Laumaia	36.5	2.5	Puuhue	17.0	4.0
Auwaiakēkua	12.5	..	Kohala Court House.....	22.0	5.0
Humuula Sheep Station.....	29.0	16.5	Mahukona	22.0	..
via Laumaia	47.5	..	Puako	12.0	..

NORTH KOHALA.—FOREIGN CHURCH, KOHALA, TO

	Miles.		Miles.
Edge of Pololu Gulch.....	4.00	Union Mill	2.25
Niuli Mill	2.80	Union Mill R. R. Station.....	3.25
Halawa Mill	1.65	Hononakau	2.55
Hapuu Landing	2.15	Hind's, Hawi	3.25
Kohala Mill .....	.50	Hawi R. R. Station.....	4.25
Kohala Mill Landing	1.50	Honoipu	7.25
Native Church	1.00	Mahukona	10.50
		Puuhue Ranch	7.25

NORTH KOHALA.—ON MAIN ROAD, MAHUKONA TO

	Miles.	Inter.		Miles.	Inter.
Hind's Mill	7.0	..	Wight's Corner	11.5	1.1
Union Mill Corner.....	8.0	1.0	Niuli Corner	12.8	1.3
Court House	9.2	1.2	Pololu Edge of Gulch...	14.5	1.7
Bond's Corner	9.7	0.5	Puu Hue	5.0	..
Kohala Mill Corner....	10.4	0.7			

SOUTH KOHALA.—KAWAIHAE TO

	Miles.	Inter.		Miles.
Puu Ainako	4.4	..	Mana, Parker's	19.5
Puuiki	7.7	3.3	Keawewai	6.0
Waiaka, Catholic Ch... 9.5	1.8		Puuhue Ranch	10.0
Puupelu, Parker's ... 10.8	1.3		Kohala Court House	15.0
Waimea Court House... 11.8	1.0		Mahukona	11.0
Waimea Church	12.2	0.4	Napuu	20.0
Kukuihaele Church ... 22.1	9.9		Puako	5.0

KONA.—KEALAKEKUA TO

Keauhou	6.0	..	Kawaihae	42.0	4.6
Holualoa	9.6	3.6	Honaunau	4.0	..
Kailua	12.0	2.4	Hookena	7.7	3.7
Kaloko	16.0	4.0	Olelomoana	15.2	7.5
Makalawena	19.6	3.6	Hoopuloa	21.6	6.4
Kiholo	27.6	8.0	Boundary of Kau.....	24.8	3.2
Ke Au a Lono bound'ry.	31.6	4.0	Flow of '87.....	32.0	7.2
Puako	37.4	5.8	Kahuku Ranch	36.5	4.5

KAU.—VOLCANO HOUSE TO

Half-way House	13.0	..	Honuapo	32.6	5.0
Kapapala	18.0	5.0	Naalehu	35.6	3.0
Pahala	23.0	5.0	Walohinu	37.1	1.5
Punaluu	27.6	4.6	Kahuku Ranch	43.1	6.0

PUNA.—HILO COURT HOUSE TO

	Miles.		Miles.
Keaau, Forks of Road.....	9.0	Kaimu	32.0
Pahoa	20.0	Kalapana	33.0
Pohoiki	28.0	Keauhou	50.0
Kapoho (Lyman's)	32.0	Panau	40.0
Opihikao	31.0	Volcano House via Panau...	56.0
Kamaili	26.0	Sand Hills, Naawale, old road.	18.5
Kamaili Beach	29.0	Kapoho, old road	22.0

TO VOLCANO.—HILO TO

Shipman's	1.7	Mountain View	16.8
Edge of Woods	4.1	Mason's	17.5
Coconut Grove	8.0	Hitchcock's	23.5
Branch Road to Puna.....	9.0	Cattle Pen	24.7
Furneaux's	13.2	Volcano House	31.0

THROUGH HILO DISTRICT TO

Honolii Bridge	2.5	Honohina Church	17.8
Papaikou Office	4.7	Waikaumalo Bridge	18.8
Onomea Church	6.9	Pohakupuka Bridge	21.0
Kaupakuea Cross Road	10.7	Maulua Gulch	22.0
Kolekole Bridge	14.3	Kaiwilahlahi Bridge	24.0
Hakalau, east edge gulch.....	15.0	Lydgate's House	26.1
Umauma Bridge	16.0	Laupahoehoe Church	26.7

THROUGH HAMAKUA.—LAUPAHOEHOE CHURCH TO

	Miles.		Miles.
Bottom Kawaiī Gulch.....	2.0	Kuaikalua Gulch	22.0
Ookala, Manager's House.....	4.0	Kapulena Church	23.9
Kealakaha Gulch	6.0	Waipanihua	24.3
Kukaiau Gulch	8.0	Stream at Kukuihaele	26.0
Horner's	8.5	Edge Waipio	26.5
Catholic Church, Kainehe.....	9.0	Bottom Waipio	27.0
Notley's, Paauiio	10.5	Waimanu (approximate)	32.5
Kaumoalii Bridge	12.5	Kukuihaele to Waimea (approximate)	10.5
Bottom Kalopa Gulch.....	14.0	Gov't. Road to Hamakua Mill..	1.5
Wm. Horner's, Paauhau.....	15.2	Gov't. Road to Paauhau Mill..	1.0
Paauhau Church	16.3	Gov't. Road to Pacific Sugar	
Holmes' Store, Honokaa.....	18.0	Mill, Kukuihaele	0.7
Honokaia Church	20.5		

ISLAND OF MAUI.

KAHULUI TO

	Miles.	Inter.		Miles.	Inter.
Spreckelsville	4.0	..	Paia P. O.....	7.2	..
Paia P. O.....	7.2	3.2	Makawao Court House.....	11.6	4.4
Hamakuapoko Mill	9.2	2.0	Olinda	18.5	6.9
Haiku P. O.....	11.0	1.8	Haleakala, edge Crater.....	26.6	8.1
Halehaku	17.2	6.2	Haleakala Summit	28.6	2.0
Huelo School	20.2	3.0			
Keanae P. O.....	35.5	15.3	Maalaea	10.3	..
Nahiku Landing	49.9	14.4	End of Mountain Road.....	15.8	5.5
Ulaino School	49.2	.7	Olowalu	19.9	4.1
Hana P. O.....	55.6	6.4	Lahaina Court House.....	25.5	5.6
Hamoā	58.2	2.6			
Wailua	62.6	4.4	Waiehu	6.4	..
Kipahulu Mill	66.2	3.6	Waihee	7.3	0.9
Mokulau	71.8	5.6	Kahakuloa	16.3	9.0
Nuu	77.0	5.2	Honokohau	23.0	6.7
			Honolua	27.0	4.0
Wailuku	3.8	..	Napili	29.8	2.8
Waikapu	5.9	2.1	Honokawai	33.5	3.7
Maalaea	10.3	4.4	Lahaina Court House.....	39.0	5.5
Kihei	12.6	2.3			
Kalepolepo	13.9	1.3	MAKENA TO		
Ulupalakua	23.6	9.7	Ulupalakua	3.5	..
Kanaio	26.8	3.2	Kamaole	7.3	3.8
Pico's	33.8	7.0	Waiakoa	13.0	5.7
Nuu	40.6	6.8	Makawao P. O.....	20.8	7.8
			Makawao Court House.....	23.0	2.2

ISLAND OF KAUAI.

NAWILIWILI TO

	Miles.	Inter.		Miles.	Inter.
Koloa	11.0	..	Wailua River	7.7	4.4
Lawai	13.8	2.8	Kealia	11.9	4.2
Hanapepe	20.0	6.2	Anahola	15.7	3.8
Waimea	27.1	7.1	Kilauea	23.6	7.9
Waiawa	31.5	4.4	Kalihiwai	26.6	3.0
Nuololo	44.8	13.3	Hanalei	31.8	5.2
Hanamaulu	3.3	..	Wainiha	34.8	3.0
			Nuololo (no road)	47.0	12.2

ISLAND OF MOLOKAI.

KAUNAKAKAI TO

	Miles.		Miles.
Meyer's, Kalae	5.0	Pukoo ..:	15.0
Kalaupapa	9.0	Halawa	25.0
Kamalo	9.0	Ka Lae o ka Laau.....	19.0
Kaluaaha	13.5		

OAHU RAILWAY DISTANCES.—FROM HONOLULU DEPOT TO

	Miles.		Miles.
Puuloa	6.0	Gilbert	23.0
Aiea	9.0	Nanakuli	27.0
Kalauao	10.0	Waianae	33.0
Waiau	11.0	Makaha	35.0
Pearl City	12.0	Makua	41.0
Waipio	14.0	Kawaihapai	50.0
Waipahu	14.0	Mokuleia	53.0
Lelehua	27.0	Puuiki	55.0
Wahiawa	25.0	Waialua	56.0
Hoeaee	15.0	Haleiwa Hotel	56.0
Honouliuli	16.0	Waimea	62.0
Ewa Mill	18.0	Kahuku	71.0

Revised Areas and Coast Line Distances, Hawaiian Islands.

Prepared by R. D. King, Survey Department.

Courtesy Walter E. Wall, Surveyor, Terr. Hawaii.

Islands	Popltn. in 1910	Miles Square	Acres Area	Coast Line in Miles	Altitude in Feet
Hawaii	55,382	4,015.6	2,570,000	297	13,825
Oahu	81,993	598.0	382,720	177	4,030
Maui	28,623	728.1	466,000	146	10,032
Kauai	23,744	546.9	350,000	106	5,170
Molokai	1,791	260.9	167,000	100	4,958
Lanai	131	139.5	89,305	53	3,400
Niihau	208	72.8	46,575	48	1,300
Kahoolawe	2	44.2	28,260	30	1,427
Midway	35	.....	.....	...	43
	191,909	6,406.0	4,099,860	957	

Seating Capacity of Principal Churches, Halls and Places of Amusement—Honolulu.

Roman Catholic Cathedral, Fort street.....	1,500
Kawaiahao Church (Native), King street.....	1,000
Central Union Church, Beretania street.....	850
St. Andrew's Cathedral (Episcopal), Emma street.....	800
The Bijou (vaudeville).....	1,600
Ye Liberty Theater.....	1,600
Empire Theater (moving pictures).....	1,000
Y. M. C. A. game hall.....	850
Mission Memorial Auditorium	600

Total Population by Districts and Islands — Comparative, 1900 and 1910.

HAWAII	1900	1910	OAHU	1900	1910
Hilo	19,785	22,545	Honolulu	39,306	52,183
Puna	5,128	6,834	Ewa	9,689	14,627
Kau	3,854	4,078	Waianae	1,008	1,958
North Kona.....	3,819	3,377	Waialua	3,285	6,770
South Kona.....	2,372	3,191	Koolauloa	2,372	3,204
North Kohala....	4,366	5,398	Koolaupoko	2,844	3,251
South Kohala....	600	922			
Hamakua	6,919	9,037		58,504	81,993
	46,843	55,382	Midway .....	.....	35
MAUI			KAUAI		
Lahaina	4,352	4,787	Waimea	5,714	7,987
Wailuku	7,953	11,742	Niihau	172	208
Hana	5,276	3,241	Koloa	4,564	5,769
Makawao	7,236	8,855	Kawaihau	3,220	2,580
	24,817	28,625	Hanalei	2,630	2,457
Molokai	3,123	1,791	Lihue	4,434	4,951
Lanai .....	.....	131		20,734	23,952
			Total whole group	154,021	191,909

Population in 1910 by Age, Groups, Sex and Race.

COLOR OR RACE	Under 21 yrs.		21 yrs. & over.		All ages.		
	Male	Female	Male	Female	Male	Female	Total
Hawaiian	5,513	5,404	7,926	7,198	13,439	12,602	26,041
Caucasian-Hawn.	2,956	2,813	1,482	1,521	4,438	4,334	8,772
Asiatic-Hawn. ...	1,363	1,391	449	531	1,812	1,922	3,734
Portuguese	6,599	6,508	4,974	4,222	11,573	10,730	22,303
Porto Rican.....	1,315	1,216	1,563	796	2,878	2,012	4,890
Spanish	610	569	468	343	1,078	912	1,990
Other Caucasian..	2,359	2,244	6,896	3,368	9,255	5,612	14,867
Chinese	3,453	2,930	13,695	1,596	17,148	4,526	21,674
Japanese	12,989	11,016	41,794	13,875	54,783	24,891	79,674
Korean	400	306	3,531	296	3,931	602	4,533
Black and Mulatto	191	196	224	84	415	280	695
All Other	1,355	245	994	142	2,349	387	2,736
Total.....	39,103	34,838	83,996	33,972	123,099	68,810	191,909

Population of Honolulu, various census periods.

1890	22,907	1896	29,926
1900	39,300	1910	52,183

Population of Honolulu and Hilo by Race and Sex, 1910.

From Tables of the Bureau of Census.

Race	Honolulu		Hilo	
	Male	Female	Male	Female
Hawaiian	3,969	3,941	369	295
Caucasian-Hawaiian	2,000	2,233	218	200
Asiatic-Hawaiian	653	727	98	122
Portuguese	3,042	3,105	552	586
Porto Rican	210	177	63	46
Spanish	141	117	37	30
Other Caucasian	5,627	3,573	382	295
Chinese	6,948	2,626	335	100
Japanese	7,659	4,434	1,699	1,080
Korean	352	108	26	1
Filipino	68	19	66	10
Negro	179	148	6	.....
All other	66	61	15	14
Total	30,914	21,269	3,866	2,879

**Comparative Table of Population, Hawaiian Islands—
Census Periods 1860-1910.**

Islands	1860	1866	1872	1878	1884	1890	1896	1900	1910
Hawaii ..	21,481	19,808	16,001	17,034	24,994	26,754	33,285	46,843	55,382
Maui	16,400	14,035	12,334	12,109	15,970	17,357	17,726	24,797	28,623
Oahu	21,275	19,799	20,671	29,236	28,068	31,194	40,205	58,504	81,993
Kauai ...	6,487	6,299	4,961	5,634	*8,935	11,643	15,228	20,562	23,744
Molokai ..	2,864	2,299	2,349	2,581	} 2614	2,652	2,307	2,504	1,791
Lanai ...	646	394	348	214		174	105	619	131
Niihau ...	647	325	233	177	.....	216	164	172	208
Kahoolawe .....	.....	.....	.....	.....	.....	.....	.....	.....	2
Midway ..	.....	.....	.....	.....	.....	.....	.....	.....	35
Total ..	69,800	62,959	56,897	57,985	801,578	89,900	109,020	154,001	191,909
All Foreigners	2,716	4,194	5,366	10,477	36,346	49,368	69,516	116,366	153,362
Hawaiians	67,084	58,765	51,531	47,508	44,228	40,622	39,504	37,635	38,547

For table of Elevations of principal localities throughout the islands, see ANNUALS of 1915 and earlier.

For export values Pineapple products, 1911 to 1917, see ANNUAL for 1918, inset table at page 46.

Population by Race and Sex, 1910, and per cent of change since 1900.

RACES	Total Populat'n	Native Born	Foreign Born	Males	Females	% Change
Hawaiian	26,041	26,041	.....	13,439	12,602	12.58 dec
Caucas'n-Hawn.	8,772	8,772	.....	4,448	4,334	} 59.35 inc
Asiatic-Hawn.	3,734	3,734	.....	1,812	1,922	
Portuguese	22,303	13,766	8,537	11,573	10,730	42.28 "
Spanish	1,990	357	1,633	1,078	912	new
Porto Rican	4,890	4,830	.....	2,878	2,012	"
Other Caucas'n....	14,867	9,917	4,950	9,255	5,612	40.56 inc
Chinese	21,674	7,195	14,479	17,148	4,526	15.87 dec
Japanese	79,674	19,889	59,785	54,783	24,891	30.37 inc
Korean	4,533	362	4,171	3,931	602	} 146.03 "
Black and Mulatto..	695	602	93	415	280	
All others	2,736	2,632	104	2,349	387	
Total.....	191,909	98,157	93,752	123,099	68,810	24.62^{Net} inc.

Illiterates in the Population Territory of Hawaii, 10 Years of Age and Over, Census of 1910.

Race	Per cent.	Race	Per cent.
All races	26.8	Spanish	49.6
Hawaiian	4.7	Other Caucasian	3.5
Caucasian-Hawaiian	1.3	Chinese	32.3
Asiatic-Hawaiian	1.8	Japanese	35.0
Portuguese	35.4	Korean	25.9
Porto Rican	73.2	Filipino and all other.....	32.4

Nationality of Plantation Labor, June 30, 1918 and 1919.

Courtesy Bureau of Labor and Statistics, Hawaiian Sugar Planters' Ass'n.

	1918	1919		1918	1919
Americans	702	750	Japanese	24,611	24,791
Spanish	529	450	Chinese	1,895	1,908
Portuguese	2,905	2,926	Koreans	1,299	1,407
Russians	41	29	Filipinos	9,964	10,354
Hawaiians	982	943	Others	280	266
Porto Ricans	1,500	1,407	Total.....	44,708	45,311

Births and Deaths by Nationalities and Counties, 1919.

Nationality	Oahu				Hawaii		Maui		Kalawao		Kauai		TOTAL	
	Honolulu		Other Dist.											
	B	D	B	D	B	D	B	D	B	D	B	D	B	D
American..	246	95	20	7	18	8	20	4	1	14	4	318	119	
British.....	27	31	2	.....	14	6	4	.....	3	1	50	38		
Chinese.....	526	205	65	23	59	31	25	37	2	37	24	712	322	
German....	6	17	3	2	1	4	1	1	1	5	2	16	27	
Hawaiian...	200	372	55	82	171	177	163	159	8	49	49	52	648	891
Part Haw'n.	526	160	63	21	178	32	143	26	6	7	67	14	983	260
Japanese....	1101	371	900	265	1185	431	624	192	1515	209	4,325	1,469		
Portuguese.	286	105	83	24	265	99	191	48	1	4119	32	945	312	
Porto Rican	20	12	60	17	96	21	41	16	30	8	247	74		
Spanish....	19	3	46	7	22	5	16	7	23	1	126	23		
Russian....	10	6	1	3	4	.....	1	.....	1	16	10			
Filipino....	55	82	128	94	122	99	47	40	97	93	449	408		
Korean....	42	30	48	15	36	13	16	8	27	7	173	73		
Others.....	12	12	1	3	2	3	5	4	1	6	2	26	25	
Unrecorded	3,076	1,501	1,475	563	2,177	929	1,297	542	15	66	992	450	9,032	4,051
Total....	3,099		1,503		2,222		1,322		15	1003		9,164		

Vital Statistics, Territory of Hawaii, 1919.

For Fiscal Year ending June, compiled from Board of Health Report.
Table of Births, Marriages and Deaths by Counties.

Islands, Etc.	Est. Popltn.	Births	Marriages	Deaths
Honolulu	78,200	3,099	1,177	1,501
Other Oahu Districts	43,000	1,503	131	563
Hawaii County	71,270	2,222	327	929
Maui County	39,000	1,322	219	542
Kalawao County	696	15	13	66
Kauai County	31,500	1,003	148	450
Total 1918-19.....	263,666	9,164	2,015	4,051

Hawaii's Estimated Population, 1919, by Nationality.

Race	Number	Race	Number
American, British, German, Russian	31,000	Japanese	110,000
Chinese	22,800	Portuguese	25,000
Filipino	22,000	Porto Rican	5,400
Hawaiian	22,600	Spanish	2,400
Part Hawaiian	16,660	Korean	5,000
		Others	706
		Total.....	263,666

School Statistics, Territory of Hawaii, 1919.

From Report of the Superintendent of Public Instruction.
NUMBER OF SCHOOLS, CLASS, ETC.

Islands	Public Schools June 30, 1919.					Private Schools Dec. 31, 1918.		
	No. of Schools	No. of Teachers	No. of Pupils			No. of Schools	No. of Teachers	No. of Pupils
			Boys	Girls	Total			
Hawaii.....	62	280	5,092	4,641	9,733	7	34	906
Mauī, Molokai....	44	169	2,785	2,565	5,350	10	39	1,073
Kauai.....	21	142	2,566	2,218	4,784	1	1	27
Oahu.....	41	472	8,545	7,690	16,235	43	296	5,163
Totals.....	168	1063	18,988	17,114	36,102	61	370	7,169

NUMBER OF SCHOOLS, TEACHERS AND PUPILS.

Class	Schools	Teachers			Pupils		
		M.	F.	Total	M.	F.	Total
Public Schools.....	168	127	936	1063	18,988	17,114	36,102
Private ".....	61	67	303	370	4,126	3,043	7,169
Totals.....	229	194	1,239	1,433	23,114	20,157	43,271

AGES OF PUPILS IN PUBLIC AND PRIVATE SCHOOLS.

Schools	Under 6	6-9	10-15	Over 15	Total
Public Schools.....	61	15,635	18,803	1,603	36,102
Private ".....	1,576	1,621	2,824	1,148	7,169
Total.....	1,637	17,256	21,627	2,751	43,271

NATIONALITY OF PUPILS.

Races	Public	Private	Races	Public	Private
Hawaiian	3,177	623	Spanish	470	43
Part Hawaiian...	3,940	1,421	Chinese	3,465	1,026
American	898	1,057	Japanese	16,295	1,251
British	97	65	Porto Rican ...	1,075	64
German	118	40	Korean	446	174
Portuguese	5,073	1,261	Russian	81	35
Filipinos	836	67	Other Foreigners	131	42
			Total.....	36,102	7,169

**Value Domestic Mdse. Shipments to the United States from
Hawaii for Fiscal Years Ending June 30, 1918 and 1919.**

Compiled from Monthly Summary of Commerce and Finance,
Bureau of Statistics.

Articles.	1918	1919
Animals	\$ 3,655	\$ 2,125
Art works, paintings, etc.....	228	.....
Bones, hoofs, etc.....	2,597	948
Beeswax	8,708	13,300
Breadstuffs	15,385	29,415
Chemicals, drugs, etc.	1,112	6,405
Coffee	275,733	925,104
Fibers, unmanufactured—Sisal	127,987	233,211
Fish canned.....	.....	149,491
Fruits and nuts	8,525,676	12,127,024
Hides and skins	398,719	338,695
Honey	161,930	316,299
Household and personal effects.....	230,034	50,157
Meat products, tallow	65,582	60,220
Molasses	634,671	591,490
Musical instruments	42,356	14,649
Paper and manufactures of	407	3,851
Pineapple juice	2,604	2,420
Rice	84,813	168,048
Straw and palm leaf, manufactures of	203	320
Sugar, brown	62,076,956	72,231,738
Sugar, refined	2,031,584	3,280,000
Tobacco leaf, unmanufactured	25,910	12,647
Vegetables	39,580	186,342
Wine (sake).....	.....	124,794
Wool, raw	81,805	96,842
Wood and manufactures of	20,167	1,880
All other articles	319,116	38,839
Total value shipments Hawaiian products.	\$75,177,518	\$91,006,254
Returned shipments merchandise	4,083,376	1,677,251
Total foreign merchandise.....	132,032	334,899
Total shipments merchandise.....	\$79,392,926	\$93,018,404

Value of Imports from Foreign Countries, 1919.

Bags	\$ 869,277	Fertilizers	\$ 25,517
Chemicals	970,463	Food Supplies	4,036,806
Coal	543,613	Spirits	1,825
Cottons	187,967	Miscellaneous	1,686,851
Total.....			\$8,322,319

Import Values from United States, Comparative, for Fiscal Years Ending June, 1918 and 1919.

Compiled from Monthly Summary of Commerce and Finance,
Bureau of Statistics.

Articles.	Domestic Merchandise	
	1918	1919
Agricultural Implements	\$ 58,134	\$ 183,317
Animals	119,994	102,647
Automobiles and parts of	1,836,458	1,196,264
Books, Maps, Engravings, etc.....	372,181	505,990
Boots and Shoes	652,644	538,907
Brass, and manufactures of	167,604	143,202
Breadstuffs	3,039,729	3,056,998
Brooms and Brushes	52,317	50,070
Carriages, Cars, etc., and parts of	237,765	157,880
Cement	523,030	317,243
Chemicals, Drugs, Dyes, etc.....	670,451	1,162,864
Clocks, Watches, and parts of	37,839	30,142
Coal	157,411	1,101,240
Cocoa and Chocolate	55,693	73,145
Coffee.....	8,425	18,249
Confectionery.....	186,075	164,753
Copper, and manufactures of	90,601	149,436
Cotton, manufactures of, and clothing	2,895,748	1,790,103
Earthen, Stone and Chinaware	124,626	134,651
Eggs	205,156	181,662
Electrical Machinery and Instruments	1,049,174	839,315
Explosives	184,344	96,099
Fertilizers	2,035,300	3,350,076
Fibers, Textile Grasses, manufactures of	510,705	387,555
Fish	654,863	689,339
Fruits and Nuts	566,073	533,945
Furniture of Metal	79,944	69,757
Glass and Glassware	259,091	185,627
Hay	326,505	174,806
Household and Personal Effects	66,984	58,380
India Rubber, manufactures of	1,494,698	1,315,128
Instruments, etc., for scientific purposes	19,952	51,385
Iron and Steel, and manufactures of	413,173	314,184
Sheets and Plates, etc.....	328,368	230,240
Builders' Hardware, etc.....	472,837	510,574
Machinery, Machines, parts of	1,557,405	1,230,578
Nails, Spikes, Pipes, etc.....	2,791,816	2,449,503
Jewelry and manufactures, Gold and Silver...	215,981	104,181
Lamps, Chandeliers, etc.....	35,233	30,343
Lead and manufactures of	100,935	94,318
Leather and manufactures of	240,772	258,435
Marble, Stone, and manufactures of	27,947	.....
Musical Instruments	150,976	72,756

Import Values from United States for 1918-19—Continued.

Articles.	Domestic Merchandise	
	1918	1919
Naval Stores	\$ 13,908	13,094
Oil Cloth	27,302	17,373
Oils: Mineral, Crude	2,176,174	349,546
Refined, and Residuum, etc.....	1,913,753	4,575,066
Vegetable	157,314	159,789
Paints, Pigments and Colors	409,425	405,319
Paper and manufactures of	567,129	693,918
Perfumery, etc.....	97,439	100,070
Phonographs, etc.....	50,814	45,617
Photographic Goods	181,720	158,435
Provisions, etc., Beef Products	42,059	74,281
Hog and other Meat Products.....	698,048	836,039
Dairy Products	678,447	980,728
Rice	594,698	717,228
Roofing Felt, etc.....	40,355	51,478
Salt	29,613	39,910
Silk and manufactures of	226,108	268,908
Soap: Toilet and other	350,835	434,868
Spirits, etc.: Malt Liquors	194,316	.....
Spirits, distilled	197,489	.....
Wines	342,723	.....
Starch	18,736	32,975
Straw and Palm Leaf, manufactures of	125,840	104,918
Sugar, Molasses and Syrup	92,261	85,616
Tea.....	24,157	22,372
Tin and manufactures of	2,177,513	2,983,384
Tobacco, manufactures of	1,065,689	1,359,342
Toys	75,428	34,390
Vegetables	609,393	689,627
Wood and Mfrs.:		
Lumber, Shingles, etc.	957,740	1,406,780
Shooks, box	536,501	887,529
Doors, Sash, Blinds	142,326	56,492
Furniture	233,059	183,772
Trimnings, Molding and other manfrs. ...	523,749	366,835
Wool and manufactures of	481,888	307,944
All other articles	2,215,707	1,034,206
Total value merchandise shipments.....	\$43,646,515	\$43,572,794

Coin Shipments, Year Ending March 31, 1919.

	To	From
United States	\$2,000	\$242,000
Foreign Countries	3,410	.....
Totals.....	\$5,410	\$242,000

Quantity and Value of Principal Articles of Domestic Produce Shipped for the Fiscal Year Ending June 30, 1919.

Compiled from Monthly Summary of Commerce and
Finance, Bureau of Statistics.

Articles		Quantity	Value
Sugar, raw	pounds...	1,248,448,867	\$76,171,170
Sugar, refined	"	37,200,000	3,280,000
Coffee, raw	"	6,844,841	1,105,910
Rice	"	1,916,165	168,404
Fibers, sisal	tons.....	815	233,211
Fish, canned .....	.....	.....	149,491
Fruits: Fresh Bananas	bunches..	106,159	89,118
Fresh Pineapples .....	.....	.....	16,057
Canned Pineapples .....	.....	.....	11,989,611
All other .....	.....	.....	24,610
Pineapple Juice .....	.....	.....	2,420
Beeswax	pounds...	33,391	13,300
Honey .....	.....	2,029,849	316,299
Molasses	gallons...	11,065,996	591,490
Hides and Skins	pounds...	1,673,646	338,695
Wool, raw	"	261,956	96,842
Timber, lumber & unmnfrd wood	M ft.....	2	400
Tobacco, Leaf	pounds...	10,556	12,647
Tallow.....	"	448,344	60,220

Hawaiian Imports and Exports, Fiscal Year 1919.

Courtesy of Collector of Customs.

Countries:	Imports to March 31.	Exports to March 31.
Australia	\$ 138,289	\$ 36,141
Br. Oceania	67,914	106,720
Br. India	1,372,469	.....
Canada	431,760	3,975,849
Chile	871,328	.....
England	47,095	1,114
France	1,822	.....
Germany	1,535	.....
Hongkong	465,209	7,485
Japan	4,558,494	548,758
Other	366,404	1,164,840
United States	42,421,474	82,409,114
Totals.....	\$50,743,793	\$88,250,021

Expense of Legislatures.

From Governor's Report, 1919.

Year.	Cost of Session	Cost per day	Bills Intro.	Bills passed.	Cost per bill passed
1911	\$70,245.84	\$1,170.75	410	169	\$415.66
1913	83,495.75	1,391.59	466	170	491.15
1915	71,478.67	1,191.31	498	226	316.28
1917	84,087.23	1,401.45	607	241	348.91
1919	86,035.78	1,433.92	616	242	355.52

**Arrivals and Departures of Shipping for Fiscal Year
Ending June, 1919.**

Compiled from Board of Harbor Commissioners Report.

Months	Honolulu				Hilo	
	Steam		Sail		Vessels	
	No.	Tons	No.	Tons	No.	Tons
1918 July	43	217,004	9	9,762	9	22,452
Aug.	51	243,483	14	21,226	10	35,482
Sept.	45	223,376	8	9,039	9	25,169
Oct.	49	221,748	11	12,088	4	15,657
Nov.	39	183,499	11	13,260	2	6,805
Dec.	52	234,237	14	17,475	3	6,418
1919 Jan.	55	220,339	5	6,151	9	28,252
Feb.	46	241,916	11	10,195	10	27,360
Mar.	71	222,471	12	18,961	9	18,534
Apl.	45	231,855	18	23,450	8	33,794
May	43	237,820	10	17,204	9	26,430
June	46	235,700	8	12,942	6	22,561
Total.....	585	2,713,456	131	171,757	88	268,914

Kahului reports 62 vessels, of 231,661 tons.

Port Allen reports 27 vessels, of 74,417 tons.

Passengers to and from Hawaii, Fiscal Year, 1919.

	Arrivals			Departures		
	Males	Females	Total	Males	Females	Total
Insular Possns..	* 7	2	9	4	2	6
“ “	†1,269	237	†1,506	612	167	† 779
Mainland Ports	* 191	130	321	369	230	599
“ “	†1,721	1,681	3,402	1,609	1,253	2,862
Foreign Ports..	*1,951	2,123	4,074	2,812	1,592	4,404
“ “	†1,677	460	2,137	1,456	1,485	2,941
Total.....	6,816	4,633	11,449	6,862	4,729	11,591

* Aliens. † U. S. A. Citizens. ‡ Including Filipinos.

Export Value Pineapple Products.

	1916	1917	1918	1919
Fresh Pineapples	\$ 77,111	\$ 23,546	\$ 10,236	\$ 16,057
Canned Pineapples	6,547,053	7,970,522	8,394,307	11,989,611
Pineapple Juice	8,750	30,520	2,604	2,420
Total.....	\$6,632,914	\$8,024,588	\$8,407,147	\$12,008,088

Hawaiian Sugar Export Statistics from 1910

For earlier years see Annuals 1896-1914.

Year	Sugar		Molasses		Ttl. export Value
	Pounds	Value	Gallons	Value	
1910	1,111,594,466	\$42,625,062	100	7	42,625,069
1911	1,011,215,858	36,704,656	1,801,796	89,708	36,794,364
1912	1,205,465,510	49,961,509	1,734,318	77,241	50,038,750
1913	1,085,362,344	36,607,820	3,736,877	140,610	36,748,430
1914	1,114,750,702	33,187,920	4,110,404	149,597	33,337,517
1915	1,280,917,435	52,953,009	5,202,913	195,485	53,148,594
1916	1,137,164,228	54,418,300	8,399,014	327,284	54,745,584
1917	1,162,805,056	62,741,164	10,979,383	392,110	63,133,274
1918	1,080,908,797	64,108,540	14,671,477	634,671	64,743,211
1919	1,215,594,766	75,511,738	11,065,996	591,490	76,103,228

Hawaii's Annual Trade Balance, etc., from 1910.

Year	Imports	Exports	Excess export Values	Custom house Receipts
1910	26,152,435	47,029,631	20,877,196	1,450,324
1911	28,065,626	42,666,197	14,600,571	1,654,761
1912	28,694,322	55,449,438	26,755,116	1,643,197
1913	37,519,620	43,471,830	5,952,210	1,869,513
1914	31,550,257	41,594,072	6,043,815	1,184,416
1915	26,416,031	62,464,759	36,048,728	1,019,534
1916	34,098,210	64,670,852	30,572,642	1,161,051
1917	46,358,341	75,115,983	28,757,642	1,169,085
1918	51,801,204	80,545,606	28,744,402	1,009,243
1919	51,895,113	98,859,311	46,964,198	858,258

Receipts, Expenditures, and Public Debt of Hawaii, from 1910.

(From Official Reports.)

Years	Revenue	Expenditures	Cash Balance in Treasury	Public Debt
1910	\$3,641,245.35	\$3,435,082.87	\$845,218.51	\$4,079,000.00
1911	3,482,560.84	3,730,765.16	822,282.07	4,004,000.00
1912	3,963,588.55	4,002,483.00	690,550.70	5,454,000.00
1913	4,300,780.71	4,261,468.66	716,729.60	6,844,000.00
1914	3,925,187.95	4,263,863.64	366,001.24	6,844,000.00
1915	4,539,241.04	4,446,415.65	464,040.43	7,873,500.00
1916	5,626,905.33	5,553,700.66	539,388.71	8,024,000.00
1917	5,944,352.95	5,638,429.13	889,508.42	7,874,000.00
1918	7,208,047.73	7,441,043.45	711,517.21	8,749,000.00
1919	7,921,671.90	8,140,768.79	442,609.95	9,194,000.00

Hawaiian Corporations, 1919.

Tables Courtesy of Treasury Department.

Class.	Total No.	Number and Capital Incorporated before and after Aug. 12, 1898				Total
		No.	Before	No.	After	
Agriculture	155	45	\$47,866,750	110	\$ 36,036,515	\$ 83,903,265
Mercantile	475	37	16,141,125	438	50,680,203	66,821,328
Railroad	9	5	7,370,000	4	7,139,960	14,509,960
Street Car	2	...	.....	2	1,950,000	1,950,000
Steamship	2	1	3,000,000	1	6,000	3,006,000
Bank	8	1	600,000	7	2,750,000	3,350,000
Savs. & Loan	15	...	.....	15	836,000	836,000
Trust	7	1	200,000	6	900,000	1,100,000
Insurance	2	...	.....	2	200,000	200,000
Eleemosyn'y	178	34	.....	144	.....	.....
Total...	853	124	\$75,177,875	729	\$100,498,678	\$175,676,553

Growth of Bank Deposits, Territory of Hawaii.

Fiscal Year—	No. Banks	Commercial Deposits	Savings Deposits	Total
1910	11	9,033,385.97	4,290,919.57	13,324,305.54
1911	16	10,289,707.89	5,020,555.62	15,310,263.51
1912	17	12,667,162.39	5,521,973.11	18,189,135.50
1913	17	11,641,901.30	5,384,395.72	17,026,297.02
1914	18	10,371,874.60	6,275,790.63	16,647,665.23
1915	19	12,378,041.53	7,736,569.32	20,114,610.85
1916	19	17,317,339.40	9,061,910.28	26,379,249.68
1917	22	22,486,524.31	10,205,496.70	32,692,021.01
1918	23	24,620,004.80	9,892,708.08	34,512,712.88
1919	26	24,898,287.81	10,450,846.55	35,349,134.36

Assessed Values Real and Personal Property (by races)
for 1919.

Taxpayers	Real Estate		Personal Property	
	No. Tax payers	Assessed Value	No. Tax payers	Assessed Value
Corporations, etc....	783	\$ 88,909,410	1,023	\$ 96,715,185
Anglo-Saxons	3,312	26,656,188	3,499	4,723,276
Hawaiians	5,878	13,670,508	1,913	1,934,609
Chinese	1,631	3,140,305	1,367	1,656,250
Japanese	1,183	1,897,764	3,461	4,684,364
Portuguese & Spanish	2,665	5,619,076	1,622	917,411
Total.....	15,452	\$139,893,251	12,885	\$110,631,095

Resources of Hawaii, 1919.

From "P. C. Advertiser" of August 21, 1919, Revised and Extended.

Estimated population, Territory	263,666
Assessed valuation, Territory	\$250,524,346
Assessed value of real estate	139,893,251
Assessed value of personal property	110,631,095
Assessed value, Honolulu and Oahu	127,163,305
Assessed value, Honolulu realty	72,813,165
Assessed value, Honolulu personalty	54,350,140
Corporate-owned property in Territory	185,624,595
Individually owned property in Territory	64,899,751
Amount Insurance carried	197,862,846
Banks have credits	35,349,134
Banks have commercial accounts	24,898,287
Banks have savings accounts	10,450,846
Corporations (675) are capitalized at	175,676,553
Estimated market value of shares	350,000,000
Sugar exports for 1919 (1,285,648,867 lbs.), tons	642,824
Value sugar exports, 1919	80,042,660
Pineapple pack (120,000,000 cans)	5,000,000
Value pack f. o. b. Honolulu	22,500,000
Total value Domestic exports	96,842,089
Total value all imports	51,895,113
Excess value exports over imports	44,946,976
Amount of Public Debt	9,194,000
Total amount year's Revenue	7,921,672

Summary of Insurance Business, Territory of Hawaii, for 1918

From Report of Insurance Commissioner.

Class	Amount Written	Amount Premiums	Losses and Claims paid
Fire	\$ 55,275,642.15	\$ 932,259.59	\$ 50,702.53
Marine	137,315,503.90	594,736.37	50,833.44
Life	5,271,700.40	1,359,795.39	526,694.31
Accident and Health.....	.....	69,126.64	22,450.88
Automobile .....	.....	80,886.37	10,042.67
Burglary .....	.....	909.04	.....
Employers' Liability .....	.....	11,687.86	746.70
Surety and Fidelity .....	.....	52,871.02	3,474.44
Plate Glass .....	.....	3,805.20	2,142.31
Workmen's Compensation .....	.....	166,499.77	57,010.49
Other .....	.....	7,728.46	1,114.86
Total.....	\$197,862,846.45	\$ 3,280,308.71	\$ 725,212.68

* Of this amount \$1,091,505.19 are renewals.

Hawaii's Bonded Debt, June 30, 1919.

Refund Bonds, 1905, 4%	\$ 270,000
Public Improvement 3½% Bonds	1,244,000
Public Improvement 4% Bonds	7,680,000
Total Bonds Outstanding.....	\$9,194,000

Pack of Hawaiian Canned Pineapple

Compiled from the Records of the Hawaiian Pineapple Packers' Association.
For earlier Packs see ANNUAL for 1918.

	1912	1913	1914	1915	1916	1917	1918
Hawaiian Pineapple Company.....	523,676	598,837	685,071	790,526	786,731	740,596	1,206,107
Haiku Fruit & Packing Company.....	100,178	140,600	207,216	182,951	144,462	172,515	† 399,532
Pearl City Fruit Company.....	80,352	84,451	93,533	115,747	69,790	64,198	54,225
California Packing Corporation.....	82,930	114,181	152,310	169,439	203,391	187,289	†1,002,608
Kauai Fruit and Land Company.....	31,020	53,152	65,846	75,503	84,992	90,030	116,592
Thomas Pineapple Company.....	99,185	94,082	107,056	133,284	168,276	74,087	{ 952,339
Libby, McNeill & Libby of Honolulu.....	141,318	223,555	491,639	605,717	579,913	623,083	.....
Maui Pineapple Company.....	25,177	46,270	80,682	98,363	97,156	108,601	.....
Hawaii Preserving Company.....	229,527	311,994	379,453	469,906	431,145	482,402	.....
Baldwin Packers (formerly Honolulu Ranch).....	.....	.....	5,975	9,180	18,222	19,498	41,702
Hawaiian Canneries Company.....	.....	.....	.....	19,000	25,405	44,732	74,210
Total number of cases for the respective years.....	1,313,363	1,667,122	2,268,781	2,669,616	2,609,483	2,607,031	3,847,315

† Absorbing Maui Pineapple Co. † Amalgamation of Haw. Is. Packing Co. and Haw. Preserving Co.

PINEAPPLE COMPANIES OPERATING IN THE HAWAIIAN ISLANDS

Company:	Office Location:	Manager:	Representatives:
Hawaiian Pineapple Co., Ltd.....	Honolulu, Oahu.....	James D. Dole.....	Hawn. Pineapple Co., Ltd., San Francisco
Libby, McNeill & Libby of Hon., Ltd. Honolulu, Oahu.....	.....	C. P. Judkins.....	Libby, McNeill & Libby, S.F. & Chicago.
Cal. Packing Corporation.....	Honolulu, Oahu.....	Alfred W. Eames.....	Cal. Packing Corporation, San Francisco
Pearl City Fruit Co., Ltd.....	Waiawa, Oahu.....	.....	T. H. Davies & Co., Honolulu
Haiku Fruit & Packing Co., Ltd.....	Haiku, Maui.....	A. F. Tavares.....	Haiku Fruit & Packing Co., Ltd., San Fran.
Baldwin Packers.....	Honolua, Maui.....	D. T. Fleming.....	Alexander & Baldwin, Ltd., Honolulu
Kauai Fruit & Land Co., Ltd.....	Homestead, Kauai.....	W. D. McBryde.....	Kelly Clark, Seattle
Hawaiian Canneries Co., Ltd.....	Kapaa, Kauai.....	Albert Horner.....	James F. Morgan & Co., Ltd., Honolulu

Taxes by Division and Counties for the Fiscal Year Ended June 30th, 1919.

Courtesy of Auditing Department.

DIVISION OF TAXES	OAHU.	MAUI.	HAWAII.	KAUAI.	TOTALS.
Special Territorial	\$ 55,530.30	\$	\$	\$	\$ 55,530.30
Real Estate	1,274,209.25	410,773.35	533,936.22	194,840.40	2,413,759.22
Personal Property	882,567.05	273,428.32	420,842.24	217,021.85	1,793,859.46
Penalty	3,270.15	169.39	554.45	24.20	4,018.19
Court Costs and Interest	5,617.05	3,509.77	2,016.98	1,013.55	12,157.35
Bicycles	2,625.75	814.00	635.50	514.80	4,591.05
Automobiles	103,983.95	25,201.60	32,374.93	15,940.75	177,501.23
Carriages, Carts, &c.	10,655.00	2,910.00	4,490.00	3,470.00	21,525.00
Brakes and Sulkies	352.00	86.00	382.00	246.00	1,066.00
Road Tax	47,870.09	19,567.29	31,273.69	15,537.75	114,248.82
Poll Tax	23,639.87	9,742.25	15,487.48	7,752.75	56,622.35
Dog and Dog Tags	2,072.55	1,281.05	2,273.70	926.40	6,553.70
School Tax	47,259.89	19,484.97	30,962.11	15,506.20	113,213.17
Income Tax	519,806.95	55,738.92	38,161.69	11,366.20	625,073.76
Special Income Tax	242,459.05	24,871.25	12,769.30	3,182.15	283,281.75
Total	\$3,221,918.90	\$ 847,578.16	\$1,126,161.29	\$ 487,343.00	\$5,683,001.35

Summary of Meteorological Observations, Honolulu, 1918-1919.

Compiled from U. S. Weather Bureau Records, by L. H. Daingerfield, Meteorologist.

(Continued from preceding Annuals.)

MONTH	BAROMETER		RAIN FALL	REL. HUM.		TEM- PERATURE		MEAN TEMPERATURE				*Cloud Am't	Wind Velocity
	8 a.m.	8 p.m.		8 a.m.	8 p.m.	Max.	Min.	6 a.m.	2 p.m.	9 p.m.	Mean. of Max. and Min.		
July	29.98	29.97	0.64	66	68	84	70	74.7	81.4	76.5	78	4.7	9.5
August	29.99	29.98	2.74	68	68	86	70	75.1	81.6	77.0	79	4.7	8.3
September	29.98	29.98	0.41	63	67	86	72	75.3	82.3	77.1	79	4.1	7.3
October	30.00	29.99	1.44	67	68	85	70	75.1	81.5	76.7	78	4.5	8.7
November	30.01	30.00	5.32	67	70	83	67	72.8	78.5	74.5	75	4.8	9.4
December	30.07	30.05	4.96	65	66	80	63	70.9	75.6	71.7	73	3.5	10.9
January	30.07	30.06	1.49	67	66	79	60	67.8	74.3	69.8	71	4.1	7.9
February	30.17	30.14	0.27	64	66	79	63	69.3	75.3	70.7	72	4.0	9.6
March	30.08	30.07	1.24	64	67	80	62	68.3	74.9	70.1	72	4.6	9.3
April	30.09	30.06	0.38	66	68	81	67	70.3	77.3	72.4	74	4.6	7.4
May	30.06	30.04	0.68	64	66	84	64	71.1	79.0	73.3	75	4.0	8.4
June	30.03	30.03	0.85	66	70	85	68	73.4	80.6	75.5	77	4.3	7.1
Year	30.04	30.03	20.42	65.6	67.5	82.7	66.3	72.0	78.5	73.8	75.2	4.3	8.6

TABLE OF RAINFALL, Principal Stations.

Compiled from Weather Bureau Reports.

Stations	Observer	1918					
		July	Aug.	Sept.	Oct.	Nov.	Dec.
HAWAII							
Waiakea.....	D. Forbes.....	27.05	14.20	6.55	8.69	20.04	20.15
Hilo (Town).....	C. E. Martin.....	17.52	14.11	6.59	7.46	18.59	19.79
Ponahawai.....	J. E. Gamal'sn....	33.81	16.42	7.85	10.54	22.50	28.18
Pepeekeo.....	Pepeekeo S. Co....	20.94	9.57	6.15	8.35	10.20	14.84
Hakalau.....	Hak. Sug. Co.....	27.35	10.71	7.39	7.79	10.53	17.47
Laupahoehoe.....	A. L. Moses.....	23.95	13.48	3.51	6.88	16.88	24.58
Ookala.....	Kauwili S. Co....	22.32	14.35	2.75	5.07	17.47	25.53
Kukalau Mill.....	A. R. Philip.....	18.06	9.31	1.74	3.68	24.37	40.16
Paauihau.....	Paauihau S. Co....	7.80	5.13	0.69	2.34	6.77	15.15
Honokaa.....	Hon. Sug. Co.....	10.07	6.52	0.91	3.20	11.04	17.74
Waimea.....	F. Pinho.....	4.49	3.05	2.25	1.39	2.37	12.22
Kohala.....	Dr. B. D. Bond....	10.25	7.34	1.01	3.62	7.55	12.82
Holualoa.....	Kona Dev. Co....	10.29	8.61	4.49	6.13	6.80	1.48
Kealahoukua.....	Robt. Wallace....	6.56	5.96	6.49	5.20	4.87	0.97
Naalehu.....	Hutch. S. P. Co....	4.53	3.23	1.43	1.44	8.44	0.40
Pahala.....	Haw. Agr. Co.....	3.93	2.49	1.41	1.25	10.79	0.42
Volcano Obs.....	T. A. Jaggard, Jr..	15.51	9.27	3.60	5.44	19.13	17.18
Olaa (17 miles)....	Olaa Sug. Co.....	38.32	18.54	8.03	11.99	24.50	36.85
Kapoho.....	H. J. Lyman.....	8.32	5.99	3.76	6.44	8.44	5.10
MAUI							
Haleakala Ranch.....	Hal. Ranch Co....	3.83	3.57	0.91	1.28	6.51	19.41
Puomalei.....	A. McKibbin.....	12.49	10.97	4.16	2.71	8.31	14.16
Makawao.....	F. W. Hardy.....	3.67	4.58	2.28	1.46	6.54	9.94
Kula.....	A. von Tempsky....	2.72	1.28	1.08	1.18	3.10	1.10
Haiku.....	Mrs. L. B. Atwater	9.29	8.43	2.04	2.41	5.42	9.30
Keanae Valley.....	W. F. Pogue.....	35.92	26.30	4.68	7.77	15.19	32.12
Wailuku.....	Bro. Frank.....	1.44	2.34	0.19	1.27	4.03	2.95
Hana.....	Kaeleku Sug. Co..	5.51	7.09	3.27	3.34	5.34	8.46
OAHU							
Honolulu.....	U. S. Weath. Bu..	0.64	2.74	0.41	1.44	5.32	4.96
Kinai Street.....	W. R. Castle.....	0.49	3.46	0.24	1.48	5.10	5.76
Manoa.....	Miss C. Hall.....	16.91	14.90	2.41	12.84	10.43	18.53
Electric Lt. St....	A. Walker.....	8.96	11.19	2.94	6.36	10.33	15.51
Luakaha.....	L. A. Moore.....	14.65	14.87	3.45	9.27	10.97	16.07
Waimanalo.....	Ed. Todd.....	0.82	3.62	0.00	1.76	11.72	3.43
Maunawili.....	Jno. Herd.....	5.52	8.80	1.55	4.20	10.34	8.07
Waialua Mill.....	Waialua Agr. Co..	1.85	2.72	1.76	0.94	11.23	5.42
Kahuku.....	H. T. Christfrsn..	1.81	3.88	1.62	2.07	10.21	3.85
Ewa Plantation.....	I. A. Hattie.....	0.02	1.77	0.79	0.44	6.38	3.22
Schofield Brks....	Surgn. U.S.A.....	0.98	1.48	3.56	1.35	12.70	5.08
Waiawa.....	A. Lister.....	4.14	4.51	1.51	3.89	10.44	6.97
Waimalu.....	Hon. Plan. Co....	1.77	3.73	1.46	2.42	9.35	5.34
KAUAI							
Grove Farm.....	G. N. Wilcox.....	2.40	4.34	1.46	2.87	7.61	5.77
Keala.....	Makee Sug. Co....	1.51	4.49	1.39	1.75	7.43	4.73
Kilauea.....	Kilauea Sug. Co..	5.48	6.02	2.42	4.97	11.78	7.77
Eleele.....	McBryde Sug. Co..	1.23	1.31	1.06	1.84	7.57	2.54
Kukuiula.....	F. S. Christian....	1.20	1.71	1.20	2.75	6.05	5.60
Waiawa.....	A. F. Knudsen....	0.00	0.47	0.50	0.00	4.50	1.57

Throughout the Hawaiian Islands, 1918-1919.

By L. H. Daingerfield, Meteorologist. Continued from last Annual.

Locality	Elev. Ft.	1918						
		Jan.	Feb.	Mar.	Apr.	May	June	Year
HAWAII								
Waialea	50	6.34	5.65	11.24	3.94	5.67	4.48	134.00
Hilo	40	4.37	5.90	11.62	3.91	5.31	5.35	120.52
Ponahawai	500	5.91	5.38	12.92	6.66	5.74	5.07	160.98
Pepeekeo	100	4.63	6.23	10.46	5.92	4.96	5.21	107.46
Hakalau	200	6.09	5.39	10.62	4.32	6.00	4.60	118.26
Laupahoehoe	110	9.07	5.70	15.54	5.75	5.40	2.16	132.90
Ookala	400	8.40	5.30	14.32	6.46	5.29	0.98	128.24
Kukalau	260	16.09	5.48	11.27	5.59	3.18	2.03	140.96
Paauhau Mill	400	5.28	1.15	7.64	3.04	2.97	0.07	58.03
Honokaa	460	5.76	1.66	9.43	3.65	3.89	0.25	74.12
Waimea	2700	3.25	1.59	2.86	2.79	1.89	2.85	41.00
Kohala Mission	537	2.81	1.59	4.88	3.45	2.76	1.74	59.82
Holualoa	1450	0.05	1.58	4.93	8.55	2.90	6.00	61.81
Kealahakua	1450	3.32	1.82	3.45	5.19	4.10	4.97	52.96
Naalehu	650	1.07	0.12	1.24	1.94	1.43	1.18	26.45
Pahala	850	0.68	0.02	3.79	0.27	1.73	0.82	27.60
Kilauea Crater	3984	3.92	3.27	8.52	3.90	2.54	2.99	95.27
Olaa, Puna	1530	4.58	7.06	9.75	9.11	6.08	7.02	181.83
Kapoho	110	3.79	2.57	6.46	2.30	4.51	4.53	62.21
MAUI								
Haleakala Ranch	2000	1.50	1.19	1.80	0.31	3.70	0.34	44.35
Puuumalei	1300	5.38	4.44	7.81	3.53	5.24	0.98	80.18
Makawao	1700	5.31	1.87	7.05	1.43	4.30	0.11	48.54
Erehwon	4200	0.80	0.05	2.25	1.39	2.72	0.59	18.26
Haiku	700	3.47	4.17	6.80	2.56	3.92	1.14	58.95
Keanae	1000	7.67	14.24	20.70	13.19	11.17	5.39	194.34
Wailuku	250	1.54	0.52	1.74	1.43	1.84	0.00	19.29
Hana	200	3.24	2.53	2.98	2.81	3.94	3.37	51.88
OAHU								
U. S. Weather Bu.	111	1.49	0.27	1.24	0.38	0.68	0.85	20.42
Kinau Street	50	5.93	0.49	1.58	0.34	0.84	1.32	27.03
Woodlawn	210	10.40	7.21	3.09	2.53	3.32	2.76	105.33
Nuuanu Elec. Stn.	405	3.86	5.94	6.30	6.14	6.20	10.64	94.37
Nuuanu Water Wks.	881	7.42	5.85	11.69	15.86	7.83	13.84	131.77
Waimanalo	25	1.23	0.67	2.51	2.83	1.14	3.28	33.01
Maunawili	250	3.41	2.10	5.50	9.04	3.56	5.74	67.83
Waialua	30	1.70	0.15	0.69	1.63	0.42	0.30	28.81
Kahuku	25	2.17	0.71	2.20	3.12	1.02	1.36	34.02
Ewa	50	0.60	0.00	0.40	0.37	0.46	0.49	14.94
Leliehua	990	2.69	0.56	1.64	1.37	1.67	0.76	33.84
Wahiawa	675	3.30	0.89	4.81	1.63	1.52	2.33	45.94
Ewa	200	3.22	0.17	3.11	0.34	2.45	0.89	34.25
KAUAI								
Lihue	200	1.70	0.87	2.34	3.76	1.04	1.86	36.02
Kealia	15	1.63	0.90	0.43	3.46	1.09	1.54	30.35
Kilauea	342	2.24	1.99	1.51	4.47	2.72	1.58	52.95
Eleele	150	0.28	0.32	1.52	0.19	3.16	0.30	21.32
Koloa	100	2.16	1.40	3.75	1.70	1.10	0.20	28.82
Waimea	35	0.27	0.41	0.28	0.18	0.48	0.81	9.47

Rulers of Hawaii: Their Birth, Accession, Length of Reign, Etc.

(Compiled for the Annual, from the best recognized authorities.)

Name.	Time and place of Birth.	Began to Reign.	Age on Acc'n.	Date and place of Death.	Age.	Length of Reign.
Kamehameha I.	Nov. ——— 1737, in Kohala.	—1782.	45 yrs.	May 8, 1819, in Kailua.	81 yrs. 6 mos	37 yrs.
Kamehameha II.	—1797, in Hilo.	May 8, 1819.	22 "	July 13, 1824, in London.	27 yrs.	5 yrs. 3 mos.
Kamehameha III.	Mar. 17, 1813, in Keauhou.	1Mar. 17, 1833.	19 "	Dec. 15, 1854, in Honolulu.	40 yrs. 9 mos	21 yrs. 9 mos.
Kamehameha IV.	Feb. 9, 1834, in Honolulu.	Dec. 15, 1854.	20 "	Nov. 30, 1863, in Honolulu.	29 yrs. 9 mos.	8 yrs. 11 1/2 mos
Kamehameha V.	Dec. 11, 1830, in Honolulu.	Nov. 30, 1863.	33 "	Dec. 11, 1872, in Honolulu.	42 yrs.	9 yrs. 11 days.
Lunalilo.	Jan. 31, 1835, in Honolulu.	2Jan. 9, 1873.	38 "	Feb. 3, 1874, in Honolulu.	39 yrs.	1 yr. 25 days.
Kalaka'ua.	Nov. 6, 1836, in Honolulu.	3Feb. 12, 1874.	37 "	Jan. 20, 1891, San Francisco.	54 yrs. 2 mos	16 yrs. 11 1/2 mos
Liliuokalani.	Sept. 2, 1838, in Honolulu.	Jan. 29, 1891.	52 "	Deposed Jan. 17, 1893.	2 yrs. nearly.	2 yrs. nearly.

1 Following a period of regency, from June 6, 1825, under Kaahumanu and Kalaimoku, during his minority.

2 3 Elected by vote of Nobles and Representatives.

Hawaiian Government Changes Since the Monarchy.

Form.	Date Effectd.	Ruler.	Office.	Remarks.
Provisional Government.	Jan. 17, 1893.	Sanford B. Dole.	President.	Till changed to a Republic, July 4, 1894.
Republic of Hawaii.	July 4, 1894.	Sanford B. Dole.	President.	Till Annexation with U. S. June 14, 1900
Territory of Hawaii.	June 14, 1900.	Sanford B. Dole.	Governor.	Resigned November 23, 1903.
	Nov. 23, 1903.	Geo. R. Carter.	Governor.	Resigned August 15, 1907.
	Aug. 15, 1907.	Walter F. Frear.	Governor.	Resigned November 29, 1913.
	Nov. 29, 1913.	Lucius E. Pinkham.	Governor.	Term expired.
	June 22, 1918.	Chas. J. McCarthy.	Governor.	Incumbent.

OPENING OF PEARL HARBOR DRYDOCK.

AUGUST 21, 1919, witnessed the triumph of engineering skill over unprecedented obstacles attending the construction of America's great naval drydock, at Pearl Harbor, and its successful opening with appropriate dedicatory exercises befitting the occasion. For this notable event Secretary of the Navy Josephus Daniels and party made the special journey from Washington to these shores to participate therein, arriving here on the dreadnaught *New York*, August 20th.

In recognition of the importance of the event, the 21st had been proclaimed a public holiday. And the day proved auspicious, vast crowds of all nationalities, by train and by auto and other vehicle, and afoot, thronged the naval station to witness the interesting world-event, "the dawn of a better day." Secretary and Mrs. Daniels, participating officials and distinguished guests, occupied a canopied structure at the head of the dock, and bleachers lining both sides of the dock served the invited throng.

Throughout the ceremony there were men watching and participating in the great national event who were dominant in the work. They were Secretary of the Navy Daniels, who said he had "sweat blood all one summer," following the collapse of 1913; President S. G. Hinde, of the contracting company, who, in delivering the dock to the navy chief, said the work had been done "honestly and conscientiously" and that it was the "best dock ever built;" there was F. B. (Drydock) Smith, the man who built it, whose eminent engineering skill and tenacity made the dedication possible; W. F. Dillingham, president of the Hawaiian Dredging Company, who stood by the enterprise and carried the project through; Rear Admiral C. W. Parks, U. S. N., chief of the bureau of yards and docks; Rear Admiral Fletcher, U. S. N., commandant, whose station organization was so effective during the final months of the completion of the work; Commander W. N.

McKay, who tied up the finishing threads and knotted them well.

The addresses of the occasion covered well the history of the dock's construction, the futility of the first effort, and present status of this new and vaster undertaking, with inspiring prophetic utterances for the future in its dedication to "the God of Civilization, the God of Commerce, and the God Christianity." The ANNUAL is indebted to the *Advertiser* of August 22d. for the following excerpts:

Rear Admiral W. B. Fletcher, U. S. N., opened the ceremonies, when he arose and faced the Secretary and addressed him, saying:

"We are here this morning to dedicate this dock and testify by our presence our appreciation of the foresight, wisdom and skill of those who are responsible for the inception and construction of this splendid work, and we admire the fruits of their labor.

"This dock is the sanitarium and the hospital of the ship. In it, ships will renew their vigor and not only the ship of war, but all ships whatever their character. It takes no great stretch of the imagination to see that its usefulness will multiply as time goes by and because of the position of these islands in the center of the vast expanse of the Pacific that sisters to it will be necessary as the world continues to grow.

"The importance and interest of this occasion is increased by the presence of the Secretary of the Navy and Mrs. Daniels, the presence of Rear Admiral Parks who was so long connected with its construction, Rear Admiral McKean and the officers whom the secretary has brought with him to see at first hand the further possibilities of this beautiful harbor.

"We have also with us the representatives of the builders of the dock, and I take pleasure in introducing S. G. Hinde, president of the San Francisco Bridge Company who, with his able assistants, has brought this work to completion."

"Mr. Secretary, it gives me great pleasure to turn this drydock over to the government," said Mr. Hinde, "and partic-

ularly to have the Secretary and Mrs. Daniels here to help dedicate it. It is also most fitting that Admiral Parks is here for he did a great service. The dock has been a difficult piece of work. The contractors have had many problems to face. We believe we have done the work well, and we know it is honest and conscientious throughout, and know the government has a good job.

"Without 'Drydock' Smith we probably would not have been celebrating the dedication today. His skill, his eternal vigilance, made the dock possible.

"It required just such a man on the job every minute, and the men who have been with him from the start to the finish. The best men we had were Hawaiians, particularly the divers, and they were excellent.

"We look to you, Mrs. Daniels, to press the button when the time comes, and as a token of our appreciation, I ask the privilege of placing this Hawaiian lei about your shoulders." And with these words he presented a wreath of jessamine blossoms, amid applause.

Secretary Daniels' address was, in part, as follows:

"Today we open and dedicate this big drydock and thereby gain for ourselves and Pacific commerce the large use of Pearl Harbor, ceded to the United States by the Hawaiian government by the convention of 1887. The importance of that concession, adopted as it was then for naval purposes and essential as it is now for the Navy and for commerce, was little realized during the year that followed.

"So indifferent were men to the potential worth of Pearl Harbor that no action was taken for its use and the American flag was not even raised over this land-locked harbor for many years after the grant was confirmed. But, with the simultaneous completion of the drydock and the coming of the powerful Pacific fleet to this mighty ocean, you Americans residing in Hawaii and we Americans residing on the continent have a comradeship in appreciation of what Pearl Harbor means.

"The completion of this drydock and the coming of great ships cements our national unity.

"The war taught us many lessons. Perhaps the most important was the error of the ancients that oceans and seas were created to separate peoples dwelling apart on distant islands and continents. This World War has enforced the truth that the waters of the great deep were made to unite and not to keep men and nations separate. By common ties of country and a common destiny the dweller in Honolulu and the dweller in Washington are as united as the residents of the cities of a single American state. The coming of the *New York* and the destroyers today is the forerunner of the coming of the whole Pacific fleet which in all coming years will be as much at home here as in the harbor of New York or San Francisco or any other harbor in our giant Republic.

"The opening of the drydock, with impressive ceremony, marks a new day in the utilization of Pearl Harbor. It is a day we have long, eagerly and anxiously looked toward, for its construction has been a ten-year contest with natural and other obstacles which were not foreseen. The original contract made in 1909 called for a concrete drydock 589 feet long. That seemed ample and was large enough for the docking of our largest ships of that period. The story of the increase in dimensions of naval fighting leviathans may be traced in the changes authorized in the Pearl Harbor drydock. In 1909 nobody dreamed of the immediate need of a dock larger than 589 feet. But within a brief period the need of larger ships led to the construction of ships of the *New York* and *Texas* class, a class calling for a dock of about 800 feet in length, and the contractors were directed to increase the length of the drydock two hundred feet. That was the vision of that day when nobody imagined constructors would see beyond the limits of the Panama Canal.

"Today, the limit of the modern battleship and the modern ship of commerce is the length and breadth of the locks in

that great link which unites the Atlantic and the Pacific. Later, our naval experts had seen the need of ships 800 to 1000 feet long and when the contract was revised the larger view of naval construction called for a drydock 1001 feet long and 138 feet wide.

"The dock we open and dedicate today to a great navy and an even greater merchant marine is not only one of the largest in the world but it supplies a world need which no dock built anywhere else in the world could afford. It meets all present-day needs. It will dock the largest dreadnaughts afloat and the largest under construction. Who, however, shall set limits to future construction?

"Perhaps the only barrier between doubling the size of the ships of our day is the difficulty of securing safe harbors of sufficient size and depth for their accommodation. Even here, with modern dredging and the making of land, no generation may set bounds for the progress of succeeding generations in such use of the sea as not even men of the widest vision of our day can contemplate. Ten years ago our standard was a 35-foot channel, last year it was a 40-foot channel—who shall dare say what it will be in the next decade?

"February, 1913, contained fateful days for all who had worked and planned for the enlargement of the Pearl Harbor naval base to follow upon the opening of the new drydock. The final attempt to unwater the cofferdam resulted in a disaster that shattered all hopes. The pumps were kept at work for eleven days, the water level gradually lowering, and the timber-work showing increasing signs of distress as the work proceeded. At 10 a. m. February 17 the cribbing began to rise at an alarming rate from the tremendous hydrostatic pressure below and the pumps were stopped at 2 p. m. From that hour the engineers, the naval officers and the workmen who had labored with enthusiasm could only stand aside and helplessly watch the fruits of four years of labor and millions of money crushed into a shapeless mass of debris. At 3 p. m.—fateful hour, never to be forgotten—all sections of the cofferdam col-

lapsed, the cribbing lifting several feet at the instant of failure. Fortunately, perhaps miraculously, no lives were lost.

"The first important task that confronted me when I became Secretary of the Navy March 5, 1913, was what to do about the drydock at Pearl Harbor. The great work had perished in a few hours. During the summer months of 1913 we almost literally sweated blood in the solving of the Pearl Harbor problem. There were able men who told us that the island of Oahu being of volcanic and coral formation gave no foundation upon which a graving dock could be successfully constructed.

"Eminent geologists and engineers were called in consultation in long conferences extending over weeks and months. Would the volcanic and coral formation make safe anything except a floating drydock? There were differing opinions from eminent advisers. The need of a graving drydock was so imperative and the expense of maintenance of a floating dock, with its limitations, impelled all to the conclusion that if in the realm of human possibility, a large permanent drydock should be constructed. As we proceeded with the consideration of the question as the difficulties of such a dock loomed up the temptation of an easy solution by building a floating dock daily assailed those charged with the heavy responsibility.

"In addition to studying the reports of geologists and consulting them, I summoned to Washington a number of the ablest civil engineers in the navy and asked each to make a plan for consideration and discussion. They entered upon it with full appreciation of the difficulties to be overcome, but with faith that they could find a way or make one. The services of the late Alfred Noble, Past-President of the American Society of Civil Engineers, were retained as Consulting Engineer. The reputation, based upon accomplishments of that distinguished engineer, gave assurance that the navy would have the best expert advice. In August of that year he visited the site of the drydock here at Pearl Harbor for a personal examination and a study of the formation as supplemental to

his study of the voluminous records and data that had been furnished him.

"In October, after numerous conferences, attended by Admiral Winterhalter, chief of material, who gave the matter most of his thought during those long months, and Civil Engineers Stanford and Mead of the bureau of yards and docks, Parks, Harris, Cox and Gaylor, the comprehensive report and recommendation of Mr. Noble was received. The outcome of the separate and joint work of the naval civil engineers was the design of a dock and method of construction embodying a marked departure in engineering work. The death of Mr. Noble denied us his counsel in making the final draft, but the design embodied all the elements of strength and safety recommended in his report. Almost daily conferences were held by the Secretary and the naval officers with the contractors, whose experience and time were freely placed at the disposal of the department.

"Finally, on November 19, 1914, the navy department signed the supplemental agreement which has been pursued to the practical completion of the dock. Piece by piece, the huge structure has been deposited, the last of the sixteen sections having been placed in November, 1918, and completion of the dock and accessories has proceeded steadily from that time. The structure as a whole was first pumped dry early in March this year, and so nicely had the weight of material been balanced against the hydrostatic lift that the dock rose only three-sixteenths of an inch when dry, the whole structure acting as a monolith.

"It is proposed to dock the first ship about September 1, this year. Total appropriations for the project to date have been slightly in excess of \$5,000,000.

"The work has been at all times under the engineering supervision of the bureau of yards and docks, and Rear Admiral Charles W. Parks, now chief of that bureau, was the officer in charge of the construction during the period when the new methods were carried into effect, up to the placing

of the fifteenth dock section. Since that time, Commander George A. McKay, of the Civil Engineer Corps, has been directly in charge. The San Francisco Bridge Company has been the contractor throughout the history of the project.

"And now the work—the great work, the monumental construction—is completed and stands approved. It is an achievement in engineering skill and daring that in some respects has no parallel. During the long months under which it has been under construction engineers in all parts of the world have watched it with interest, some with doubt, all with hope.

"Personally, today is a momentous one to me for, as it was the first big problem that called for action when I came into office, its successful completion has been the crowning achievement of naval construction in these epoch-making years.

"I congratulate the contractor, whose zeal and anxiety has been scarcely less than my own, the engineers who have worked and watched, and the men of skill and toil who have made possible the realization of a dream that has in it a promise far greater than many of us have comprehended. It has been for all concerned a noble accomplishment for these islands, for America, for the world.

"Let us, as we dedicate it to the God of Civilization, the God of Commerce, the God of Christianity, who rules upon the waves as well as upon the land, rejoice that America has provided for itself and for its naval efficiency a naval base, which, when completed, will be as a lighthouse across the waters.

"Let us be happy also that it is built not only for American interests and the expansion of American shipping that traverse the Pacific, but will prove a blessing also to all nations now entering upon a new era of peaceful expansion in a world which believes and will put its faith into practice that nations are to live in harmony and work together for world friendship and world betterment."

Following her husband's address, Mrs. Daniels advanced to the front of the platform, pressed the button and through the

long tube carrying the wires, the message was recorded at the caisson gate, the valves opened wide, the water gushed through in volumes and automatically an American flag on the gateway was released.

The dock was finished. It was offered to and accepted by the American government. Pearl Harbor, ceded first by the Hawaiian monarchy to the United States in 1876—centennial year—as its part of the Reciprocity Treaty, became an actual naval base—Uncle Sam's armed sentry far out in the Pacific.

SOME PHASES OF HAWAIIAN CLIMATE.

BY LAWRENCE H. DAINGERFIELD, *Meteorologist.*

ONE would have to travel far afield to discover another area of 6454 square miles, constituting the eight main islands of the Hawaiian group, over which so wide a range of rainfall may be gaged.

Nestled in the lap of the great Pacific and crescented like the bow of some giant archer, the islands are subject to the caressing and sometimes battling Trade winds bringing from the sea their burden of moisture. These Trades are the old faithfuls that sweep the windward plains, slopes, and palis and bathe the mountain crests and precipices with some of the greatest torrents from the clouds known to man.

Yet when we pass down the leeward slopes and out over the volcanic red plains, we find a dry realm of such startling contrast that much substantiation is necessary to be convincing. Only the miserly leftover rainfall of the windward slopes and the highlands finds its way to the low-level leeward sections, where heavy rainfalls usually come only with the advent of the Kona storm.

There is one happy region, however, not dependent on the Trade winds for its precipitation—the Kona districts of the Island of Hawaii. Between these districts and the so-called

windward slope, Mauna Loa, Mauna Kea, and Hualalai raise their crests, with plains and plateaux of wide expanse upon their broad shoulders. The considerable mass of the Island of Hawaii, with its higher temperature, especially in summer, than the surrounding water, causes sea breezes to pass up the slopes of this Island in an attempt to establish equilibrium, made unstable by the heated land mass. Thus we find southwest winds prevalent over the Kona districts, which are stronger in summer than in winter, evidenced by the fact that May to August are the wettest months, while December to February are the driest, while for the whole group of Islands, in striking contrast, we find December the month of greatest rainfall and June the least.

The wonderful contrast in rainfall between windward and leeward slopes, if we except the Kona districts of Hawaii, can be shown best by a few illuminating figures:

Awini, at an elevation of 2100 feet in the North Kohala hills of Hawaii, has an annual rainfall of 167.68 inches, while a yearly amount of only 16.60 inches is gaged at Mahukona, about nine miles leeward. Nahiku, windward of Haleakala, Maui, receives annually about 300 inches, while Waiopai Ranch, leeward of Haleakala, and perhaps 14 or 15 miles from Nahiku, gages normally only 25.39 inches. Puu Kukui (Upper), West Maui, elevation 5000 feet, receives normally 370 inches, while Camp No. 7, only about 8½ miles distant, near the west side of the Maui isthmus, elevation 90 feet, receives only 15.66 inches. The greatest and least amounts of precipitation ever gaged in the Territory in a full year are likewise found at Puu Kukui (Upper), which received 562 inches in 1918, and Camp No. 7, with only 2½ inches in 1912.

The wet places mentioned are dry, however, when compared with Mt. Waialeale, Kauai, elevation, 5075 feet, and the crest of the Island. Here is gaged annually a normal amount of approximately 476 inches—an amount probably unequaled elsewhere in the world, as Cherrapunji, in the Khasi

Hills of India, so long a claimant for first honors for wetness, seems to have fallen into second place with 426 inches of rain annually. Only some fourteen or fifteen miles leeward of Mt. Waialeale, however, we find a quick surrender to dryness, and Waiawa, at an elevation of 35 feet, receives annually a normal amount of 22.21 inches.

A recent analysis of rainfall data in this office of 333 stations widely distributed throughout the islands and including records from the beginning of observations to and including 1918, revealed interesting information as to wet zones. At first thought one might say that rainfall in Hawaii must increase continually with elevation, but investigation shows exceptions to this general rule. The islands were divided somewhat arbitrarily into nineteen climatic sections, which follow, with their "wet zone" and "dry zone", and their respective average rainfall in inches per annum:

HAWAII: Kohala and Kohala Mountains: 3500 to 4000 feet, 200 inches; zero to 500 feet, 55 inches. Windward Slope: 1000 to 1500 feet, 168 inches; 3000 to 3500 feet, 75 inches. Kau Region: 3500 to 4000 feet, 103 inches; zero to 500 feet, 34 inches. Kona Region, 1000 to 1500 feet, 71 inches; zero to 500 feet, 37 inches. Mauna Kea—all slopes except windward: 4000 to 4500, 58 inches; 2000 to 2500 feet, 20 inches.

KAUAI: Windward: 5000 feet, summit, Mt. Waialeale, 476 inches; zero to 500 feet, 69 inches. Leeward: 2000 to 2500 feet, 191 inches; zero to 500 feet, 41 inches.

LANAI: Only two stations, between 1500 and 2000 feet, 35 inches.

MAUI: West Maui, Windward, 4500 to 5000 feet, 330 inches; zero to 500 feet, 40 inches. West Maui, Leeward: 1000 to 1500 feet, 96 inches; zero to 500 feet, 27 inches. Maui Isthmus: 500 to 1000 feet, 33 inches; zero to 500 feet, 28 inches. East Maui, Windward: 1000 to 1500, 179 inches; zero to 500 feet, 74 inches. East Maui, Leeward: 3500 to 4000 feet, 38 inches; 500 to 1000 feet, 25 inches.

MOLOKAI: Windward (only one station), zero to 500 feet, 67 inches. Leeward (no stations above 1000 feet recording), 500 to 1000 feet, 64 inches; zero to 500 feet, 42 inches.

OAHU: Windward, zero to 500, 68 inches; 500 to 1000 (this is Makapuu Point, dry and not typically windward slope), 38 inches. Mountains, Leeward: 1000 to 1500 feet, 135 inches; 500 to 1000 feet, 120 inches. (These are the only zones measured.) Plateau: 1000 to 1500 feet, 77 inches; zero to 500 feet, 45 inches. Leeward: 500 to 1000 feet, 112 inches; zero to 500 feet, 51 inches.

Another interesting and useful combination of rainfall facts was found by averaging the annual precipitation gaged at all reporting stations on the several islands from the initial records to and including 1918. The island means in inches and hundredths follow:

HAWAII: 100.78 inches for 119 stations; **KAUAI:** 83.33 inches for 60 stations; **LANAI:** 34.90 inches for two stations; **MAUI:** 93.70 inches for 74 stations; **MOLOKAI:** 55.62 inches for five stations; **OAHU:** 69.48 inches for 73 stations. For all islands and all of the 333 stations, 88.14 inches. It is interesting to note that approximately 2,000,000 observations were made by cooperative observers to secure the data from which this final average was derived. These faithful observers have given this splendid service free to a scientific investigation of Hawaii's climate, and deserve the gratitude of all the dwellers on these islands.

The study of temperature has been a much simpler problem than that of precipitation. Generally speaking, the extreme highest temperatures have been recorded on the leeward, and, consequently, the drier, sunnier side of the islands, where the slopes are presented more directly to the warmer rays of the afternoon sun. The highest official shade temperature known in the Territory occurred at Mahukona, leeward of North Kohala district, Hawaii, when 98° was recorded on June 27, July 25, and August 21, 1915, at an elevation of only eleven feet above sea-level. The lowest temperature known was 25°

above zero on March 6, 1912, occurring at Humuula, on the south slope of Mauna Kea, Hawaii, at an elevation of 6685 feet above the sea.

The writer has been advised that ice frequently forms, during the winter season, to the thickness of an ordinary window-pane at Puu Oo on the southeast slope of Mauna Kea, Island of Hawaii, and that snow is not unknown over the Puu Oo ranch paddocks. The higher levels of Mauna Loa and Mauna Kea, Hawaii, and Haleakala, Maui, are frequently white with snow during the colder months of the year, and transient snow has been seen on the crest of Mt. Waialeale, Kauai. It is not unusual to see snow banks on the crests of Mauna Kea and Mauna Loa in mid-summer, thus indicating persistent frost at those desolate altitudes, even though tropical verdure luxuriates at their bases in perennial summer.

It is doubtful if frost ever forms much if any below the 2500-foot level over the entire group of islands, and rarely below 4000 feet. A temperature of 38° was recorded at Glenwood Experiment Station, on the eastern slope of Mauna Loa and Kilauea, Island of Hawaii, at an altitude of 2300 feet, on the morning of January 7, 1919, which would indicate a near approach to frost; this is the lowest temperature known for so low an altitude within the Territory. The Hawaiian Volcano Observatory, at Kilauea crater, elevation 3984 feet, reported frost on the morning above mentioned, with a clear sky prevailing.

The mean annual temperature of the Territory for all reporting stations with official thermometers from the beginning of records to and including 1918, is 71.4 degrees. In noting the mean temperatures of the several islands, careful attention should be given to the average elevation of the stations considered, e.g., the annual mean for the Island of Hawaii, the most southerly of the group, is only 69.0° ; but the average elevation of the 23 stations considered is 1339 feet; while Kauai, the most northerly, whose six temperature sta-

tions have a mean of 73.4°; but their average elevation is only 161 feet, against Hawaii's 1339.

The temperature range from the mean of the warmest to the mean of the coldest month, or from summer to winter, by islands, is slight, as indicated by the following: Hawaii, 5.2°; Kauai, 7.9°; Lanai, 6.4°; Maui, 6.1°; Molokai, 7.2°; Oahu, 7.4°.

The outstanding features of Hawaiian climatology are the remarkable differences in the quantity of precipitation gaged in adjacent areas, the tenaciousness of the Trade winds through all seasons and over all islands of the group, (aside from a limited area leeward of Haleakala and over the Kona districts of Hawaii), and the persistantly equable temperature which passes through the cycle of seasons devoid of extremes. The abundant moisture, especially over the leeward slopes, and the lack of tropical storms, known elsewhere in the Tropics as typhoons or hurricanes, add to the desirability of the climate from the standpoint of recreation and pleasure, as well as the more practicable pursuits of life.

From the warmth of the continuous low-level summer to the chill of the persistent high-level winter, from the arid plains to zones of frequent and heavy rains, from the sunshine of Kau, Kona, Lahaina, Honolulu, Waianae, Waialua, Koloa, and Waimea districts to the cloud- or fog-draped crests of Mauna Loa, Mauna Kea, Haleakala, Mounts Eke, Olympus, Konahuanui, Kaala, and Waialeale, one finds, perhaps, greater climatic changes than can be found elsewhere upon the face of the earth within so limited an area.

NEW CENSUS. Taking of the federal census throughout the territory of Hawaii is planned to commence January 2, 1920, under the direction of Richard C. Lappin, who arrived here from Washington, D. C., the latter part of October, to study his field and lay out the preliminaries of the important work.

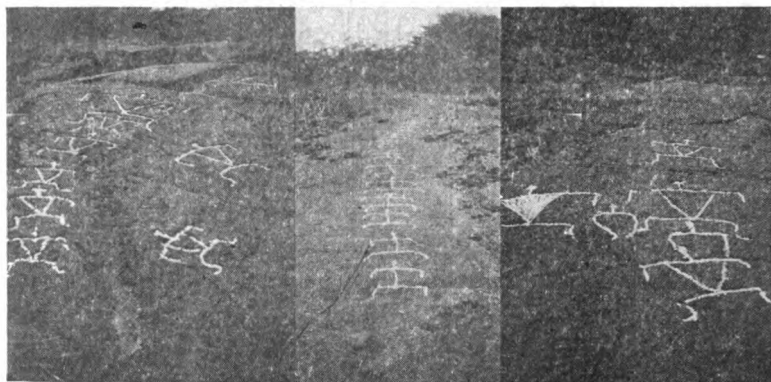
STILL MORE PETROGLYPHS.

BY ALBERT S. BAKER, M.A., MD., B.D.

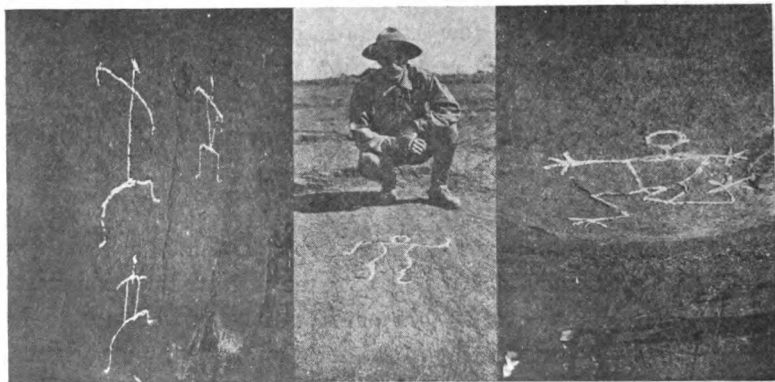
THROUGH mentioning my visit to the petroglyphs described in last year's ANNUAL, Mr. John Lynn, manager of Puuwaawaa ranch, was led to remark to the writer that he believed it was something of the sort that he had stumbled across a couple of years previous when he was resident at Puako, South Kohala. On my expressing interest, he kindly invited me to accompany him when business next took him that way. Accordingly, in due time, we set out, taking horses at Keaumoku gate for the fifteen-mile ride down to Puako. We passed a cave perhaps a quarter of the way down on the left, where quantities of great blue pigeons have nested for decades, to judge by the signs of their occupancy. Larks were singing beautifully, and on parts of the journey many flocks of quail, wild goats, wild sheep, and wild pigs were seen. All the mountains and the great plain with its cones inspired one with the impression of air and space and beauty. Just before reaching Puako one is surprised by overlooking vivid green irrigated alfalfa fields, the alfalfa being raised for feeding the pigs and a few cattle of this one-time sugar plantation, of which scarcely a suggestion now remains. Algeroba has also grown in marvellously, and the beans well second the alfalfa as feed. Dust is deep and powdery, but this, blown down from the Waimea Plains, or brought by the occasional sudden freshets, is what makes the good soil here.

Mr. Cullen, manager at Puako, said that he had run across the rock markings recently, so he offered to guide us to them, but when we found his patches they proved not to be Mr. Lynn's find at all, but still another set of petroglyphs. We went along the shore trail south from pretty Puako Bay, perhaps a mile and a half or two miles to a gate which led us through the algeroba an eighth to a quarter of a mile from the sea. We had to tie our horses and walk or crawl to get to the place, and it is almost impossible to describe it so that

a stranger could find it, as there are no landmarks for comparison. We turned in not far before what is *now* a break in the algeroba growth, but it may be filled soon. The marks are on a couple of fair-sized patches of pahoehoe in open



places among the trees just before one reaches a low stone wall, and perhaps half way from the sea to a telephone line. As far again beyond the telephone line, toward Mauna Kea, we would have crossed the line of the other wonderful strip

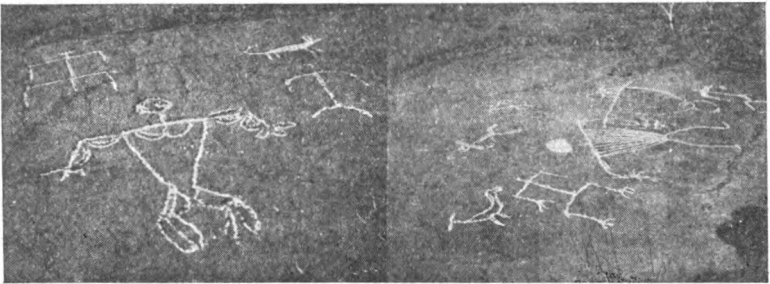


which we started out to see, and which we found the next day.

At this first place the most striking new feature is one row of thirty simple small human figures, one directly above the other, and one other shorter line. There are also, among the

conventional forms, a number of triangular-bodied creatures, with either three or five straight-lined fingers and toes, like all the other body lines. Some are very large, and some are quite small. A little figure is seen under the arm of another figure, and some bodies are wholly cut out instead of being outlined. At one place single-lined, triangular, and rectangular-bodied figures are seen near together. There are no circles here.

The second morning we started again, finding the first petroglyphs some two miles or so from Puako Bay, to the south but part way inland. To our amazement we followed this narrow strip of rock cuttings in a relatively straight line, and almost continuous, for what we all agreed was at least two and



a half miles and perhaps more, for after a break where sand had drifted over we found a few again, just where the before-mentioned shore trail mounted on to the big aa lava strip of about three miles to Kalinaopelu, the name of the place in Puuanahulu makai, South Kona, described in last year's ANNUAL, some half-mile inland from Kapalaoa and another half mile north. A third of the way over this lava to Kalinaopelu, going south, seemed to be the boundary between South Kohala and North Kona. The Puako end of these petroglyphs is some three-fourths of a mile from the shore, with the telephone line about a third of the way to the water. The last, at the southern end, are about at the shore, as described, where are the last of the algeroba trees, five miles from Puako bay.

This wonderful strip of petroglyphs was along an ancient

trail going more inland than the present trail, but of which I could see no trace at the present time. The area is double or three times that at Kalinaopelu, though due to the compact mass of petroglyphs on the two acres or so there, perhaps there are no more actual figures. There are circles the nearer we get to the two acres at Kalinaopelu, with four concentric circles at the very end, and once we saw ten dots around a center dot. Some figures are very faint, others equally distinct. Some figures are outlined, especially among the female figures, and one is very elaborate. Many figures have one hand up, and one contortionist has one foot and leg turned up. Among various other things, a dog and a bird can be detected.

As we continued over the various lavas back to Puuwaawaa via Kiholo, which is on the shore some sixteen miles south of Puako, but only half that distance down from Puuwaawaa, we investigated a pile of stones which is just makai of the trail at the north end of Kapalaoa, in line to Mauna Kea, and a half mile from the Kalinaopelu mass, and found a small patch similar to Kalinaopelu, and again a second similar patch by another pile of stones an equal distance makai of the trail and just a little south of the other. There were some twenty *little* piles of stones around this second stone pile.

The whole experience of these two days made an extremely interesting occasion. The petroglyphs in this region seem to be more in number and variety than all the finds made elsewhere on all the islands put together.

AN APPRECIATIVE TRIBUTE. "The days spent in Honolulu are among the brightest days of my life. Its commercial and naval importance are equalled only by the hospitality of its men and women and the enterprise and progressive spirit of its men of affairs. With the organization of the great Pacific fleet and the ever increasing merchant marine its prosperity upon a greater scale is assured. I hope to visit Hawaii again and stay long enough to enjoy to the full its wonderful climate."—Signed: Josephus Daniels.

UP FROM IDOLATRY.

BY H. E. BOOTHBY.

In view of the centennial observance this year to commemorate the arrival of the first missionaries and teachers sent to these islands by the A. B. C. F. M., this succinct account of the pioneering work and its marvelous results may not be an untimely tribute. EDITOR.

RECORDS of the early missionary efforts of the Congregational churches in New England contain much information of special interest to residents of Hawaii. Many of the incidents noted have passed into history, and are familiar to casual readers, but there is a mass of information therein contained with which even the descendants of the pioneers are unfamiliar.

I have been delving into the records in Boston, and hope to be able to present a few facts of historical importance to present-day readers relative to the inception and establishment of the Mission.

Henry Obookiah, who led to the inspiration of the movement, was born on the island of Hawaii, in 1795. His parents were killed in a civil war while he was quite young. In 1809 he embraced an opportunity to come to the United States with a Captain Brintnal, of New Haven, Conn. Henry showed a strong desire for instruction, and attracted the attention of Rev. Edwin W. Dwight, who received him as a pupil. By invitation of James Morris, Obookiah was enabled to spend the winter of 1813 in grammar school at Litchfield, Conn. In 1814 the North Consociation of Litchfield county, a missionary society, assumed the expense of his care and education.

Thomas Hopu came to the States with Obookiah. In 1815 he visited New Haven, and decided to accept the offer of the missionary society and study with Obookiah. William Kenui accompanied him.

Obookiah was soon converted, and planned to return to Hawaii as a missionary. He was taken suddenly ill, however, in February, 1818, and died on the 17th of that month. He had commenced a translation of the Scriptures into his native

language, and began to prepare a dictionary and a grammar. His life at school and the influence he exerted had been such that the society decided to send a party of missionaries to the islands.

At a meeting held in Boston in the Park street vestry, to determine the personnel of the party, the following persons were chosen: Rev. Hiram Bingham and Rev. Asa Thurston, ordained for this particular service, accompanied by their wives; Daniel Chamberlain, farmer; Dr. Thomas Holman, physician; Samuel Whitney, mechanic and schoolmaster; Elisha Loomis, printer and schoolmaster, all recently married, were also selected. John Honolii, Thomas Hopu and William Kenui were also attached to the party, making a total of seventeen. They embarked October 23, 1819, on the brig *Thaddeus*. George Kaumualii, son of the king of Kauai, who had been educated at Cornwall, accompanied the party to Hawaii.

In the meantime, the London Missionary society had sent missionaries to the Society Islands, and the converted natives became devoted teachers. They burned their idols, and introduced so many reforms that the story of the new era of peace and happiness reached Hawaii. In 1818 a number of Hawaiians who had spent several years with relatives in Tahiti, returned to Hawaii on the brig *Clarion*. Their reports concerning the advent of Christianity and its effect upon the natives of those islands created a profound impression, but Kamehameha was king, and enforced all observance of idolatry.

Kamehameha I died May 8, 1819. His son Liholiho succeeded him. He was much impressed by what he had heard of the reforms introduced in Tahiti, and resolved to strike a decisive blow. For men to eat with women was kapu. On a day selected for the purpose, while the women of the royal household were dining, he went in boldly and took his seat among them. He arose within a few moments, explained his action, declared the kapu broken and the system abolished. He also ordered the idols burned.

On March 30, 1820, the missionaries who had sailed from

New England saw the snow-capped mountains of Hawaii. As the vessel sailed around its northern coast, Thomas Hopu pointed out the valley where he was born. No canoes came out to meet the vessel, and the Hawaiian members of the party concluded that it was a season of special kapu. Mr. Hunnewell, one of the mates, with Hopu, Honolii and others, were sent ashore to make enquiries concerning the king and state of the islands. They returned within a few hours with the surprising information that Kamehameha was dead, Liholiho reigned, the idols had been burned, and the whole system of idolatry abolished.

The next day Mr. Ruggles, Hopu and George Kaumualii visited Kalanimoku (Billy Pitt), who had been regarded as Kamehameha's prime minister. They were hospitably received, and one of Kamehameha's widows sent presents of fish and vegetables on board the ship. April 4th, accompanied by Kalanimoku, they entered the harbor of Kailua and were introduced to King Liholiho, to whom they read the letters, and delivered the presents which had been designed for his father.

The question whether they should be permitted to remain as teachers was deferred, awaiting the arrival of several chiefs, and more particularly of Kaahumanu, who had been Kamehameha's favorite wife. After consultation, Liholiho decided that the entire party might land and reside at Kailua, and assigned for their use a house which had been used by his father. It was thought expedient that a part of the mission should settle on Oahu. On the 11th the king gave his consent, but asked that Dr. Holman, Kenui and Hopu should remain at Kailua. As it was deemed advisable that an ordained missionary should also remain, Rev. Thurston was designated for that purpose. The Hawaiian members of the landing party presented the king with several books printed in the Hawaiian language and he at once became intensely interested therein, and studied them daily. The *Thaddeus* sailed on the evening of April 11th with the rest of the company for Honolulu and arrived there on the 12th. Captain Winship of Boston had

given them an order on his agent to put them in possession of his house in Honolulu, and they took up their abode therein on the 19th.

Early in May, the *Thaddeus* sailed for Kauai, to carry George Kaumualii to his father. At his request, Mr. and Mrs. Whitney and Mr. and Mrs. Ruggles accompanied him. The king received his son with excessive joy; he said he was so happy he could not talk much that day, but he thanked Captain Blanchard profusely for bringing his boy home, and gave the strangers a royal welcome. George told his father of the great round world he had seen and the houses of the haoles; and unfolded to him an outline of the ways and habits of the people who lived in that strange land, the United States. The king listened with wondering amazement. The next day he gave the young man a number of presents; the following day he said: "The fort is yours;" the third day he said: "Behold the valley! From shore to the mountain top I give it thee," and in a few days he committed to him, as second in command, the principal concerns of the island.

King Kaumualii offered to furnish houses and land for the whole mission if they would settle on Kauai, and to build houses for schools and worship at his own expense. "Teachings of haoles made my son new kind of man," said he. "Before, no Hawaiian ever so wise. You come, stay; I give you everything. I want all my people to be wise like my boy." At his request Messrs. Whitney and Ruggles were, in July, 1820, stationed on Kauai, and Kaumualii proved a faithful and efficient friend.

At Honolulu, Governor Boki appeared dilatory about erecting houses to accommodate the mission. However, when the matter was mentioned to him he said he had orders from the king to build them, free of expense to them, and proceeded to do so, beginning the erection of the first house in June. The Hawaiians had been deeply impressed by the arts and domestic science which had already been introduced, and by the grace, patience and personal interest shown by the mission-

aries, became so interested in the proposed building of schools and churches that they insisted on carrying the timbers from the mountains, at distances from six to fifteen miles, instead of hauling them with oxen.

George Kaumualii appears to have been made somewhat giddy by his elevation to power, and lost something in manliness and character; but he continued friendly to the mission. Hopu became a favorite attendant upon the king, and was called by his people, "Hopu the faithful." He found his father, and caused him with the family to be removed to a house near the royal residence.

King Liholiho was unwilling to allow the common people to be taught to read until after he had become proficient. "You think I want my people to know more than I do?" he said. "Aole." He did, however, allow the chiefs to be instructed. The zeal of many of them was remarkable, and their progress rapid. The king first saw the missionaries, it will be remembered, on April 4th. In the latter part of July he could read the New Testament intelligibly. In November, the mission had four schools, of eight, fourteen, thirty, and forty pupils each, respectively. The first house of worship erected in Honolulu was 54 feet long by 22 feet wide, designed to accommodate 200. It was dedicated September 15, 1821.

The American Board of Missions decided to send a reinforcement, to supply the demand for additional teachers and preachers. This party consisted of Revs. William Richards, Charles S. Stewart, Artemas Bishop, Dr. A. Blatchley, and Messrs. Joseph Goodrich and James Ely, licensed preachers, with their wives; Levy Chamberlain, superintendent of secular affairs; Miss Betsy Stockton, a colored woman of good education; one native of the Society Islands and three Hawaiians who had been educated at Cornwall. The party sailed for the islands November 19, 1822. The hymn entitled "Wake, Isles of the South, Your Redemption Is Near!" which is still in

use, was written for the occasion by Wm. B. Tappan, and first sung in public when the party embarked.

On the first Monday in January, 1822, the art of printing was first introduced on the islands. The first sheet printed was an eight-page form of an Hawaiian spelling book. Several masters of vessels attended this important event. Keeaumoku (Gov. Cox) set part of the type, and assisted in printing the first form. Six months elapsed, however, before the next form was printed, as great difficulty was experienced in analysing words and determining sounds. But the book when printed was studied assiduously. In August the king resumed his studies with characteristic energy. By the middle of the month he had learned to write a fairly legible hand, and wrote a letter of condolence to a chief of the Society Islands on the death of the latter's favorite son. Kaahumanu, Kaumualii and Kalanimoku studied persistently. In September there were 500 pupils under instruction.

A deputation from the London Missionary Society, consisting of Rev. Daniel Tyerman and George Bennett, with Rev. Wm. Ellis and wife, and Auna, a deacon from the Society Islands, and his wife, reached the islands April 16, 1822. It was Mr. Ellis' plan to go, with Auna, to the Marquesas, but they were invited to call on Kaahumanu and were invited by her to remain here and she promised to assist them. Before the visitors left, Auna's wife discovered that Kaumualii was her brother. Rev. Ellis seemed to be a favorite with all classes. The Hawaiians jocularly told him they had induced the king to kapu him so that he could not leave the islands.

The first Christian marriage in the islands was that of Thomas Hopu, who married Delia, a promising young woman who had been instructed at the mission, and who gave evidence of piety. She could weave a mat, make a dress, or sing a mele with such grace that Hopu called her "the fairest flower that grew between the snow-capped mountain and the sounding sea." They were married August 11, 1822.

Rev. Ellis composed a few hymns in the Hawaiian language; Auna and his wife could preach to them in their native tongue; Kaumi, a favorite of Keeaumoku, was a convert and strongly urged him to yield, and invited Messrs. Bingham and Ellis to hold a prayer meeting at his house. Rev. Ellis preached and Hopu offered prayer. The next day he urged his sister, Kaahumanu, to join him in following the new path. She at that time hesitated, but later became a sincere Christian, and leader in every movement looking to the uplift of her people.

In January, 1823, the king, his brother, twelve chiefs and a number of distinguished women, were learning to read and write. In this school there were 200 pupils. At the examination the king sent in his copy book for inspection, with a letter advising the pupils to observe the words of the teachers and ministers. On the 16th., Rev. Bingham's infant son of three weeks died, and on the 22d. the little half-sister of the king died. At his request she was given Christian burial. The following month the chiefs held a consultation regarding the observance of the Sabbath. The king had written to Kalanimoku, enjoining its observance, and imposing a fine of \$1.00 on any who should be found at work on that day.

In March, a chief was sent to take charge of Maui. At his request he was supplied with books, so that he and his wife might pursue their studies. A blind native, who had been a minstrel to the court but who now appeared to possess more spiritual light than any other native on the islands, went with them to perform the duties of a chaplain. Unfortunately, his name is not recorded.

The reinforcement which sailed from New Haven in November, arrived April 27, 1823, and was received with great joy by the king, chiefs and people. The chiefs of the several islands were all anxious to have teachers and preachers located near them. The force was accordingly distributed as follows:

Hawaii: At Kailua, Mr. Thurston and Mr. Goodrich. At Hilo, also called Waiakea, Mr. Bishop and Mr. Ruggles.

Maui: At Lahaina, Mr. Richards and Mr. Stewart.

Oahu: At Honolulu, Mr. Bingham and Mr. Ellis.

Kauai: At Waimea, Mr. Whitney and Mr. Ely.

Mr. Loomis, with the press, was stationed at Honolulu, which was also the home of Mr. Chamberlain, superintendent of secular concerns. Dr. Blatchley was to visit the several stations, but his headquarters were to be at Kailua. Preparatory to this distribution, Messrs. Ellis, Thurston, Bishop, and Goodrich visited the various districts of Hawaii, and for the first time visited Kilauea. They found 51 craters, 21 of which were constantly emitting smoke and flame. These craters they described as "conical islands on the surface of a burning lake." The natives approached the place in fear, and were surprised when they were not destroyed by Pele. "Great is the Akua of the haoles!" said one of them.

The station at Kailua was resumed in November. The faithful Hopu had labored there alone for some time. Kua-kini (Gov. Adams) was building a house of worship within the enclosure of a demolished heiau. The church was dedicated December 10, 1823. The attendance at that time varied from 600 to 1000. At Kaawaloa, some 15 miles from Kailua, the aged Kamakau, the most distinguished poet on the islands, was striving to lead his people in the right way.

At Lahaina, Keopuolani, the friend and patron of the mission, died September 16, 1823. Heiress of ancient kings, a widow of Kamehameha and the mother of Liholiho, she was the highest chief on the islands. She enjoined that no heathen customs should follow her death nor attend her funeral. Her body was deposited in a stone mausoleum. Hoapili, her husband, instead of taking another wife immediately, waited over a month, and then selected Kalakua, another widow of Kamehameha. They were married October 19, 1823, at the mission, at which time she objected to the use of her former name and chose to be called Hoapili-wahine.

In November, 1823, King Liholiho and the Queen sailed for England, in the *L'Aigle*, Captain Starbuck, intending to

also visit the United States. He left the government in the hands of Kalanimoku and Kaahumanu, and named his young brother Kauikeaouli as his successor should he never return. He arrived in London in May. There he received some attention from statesmen and others, and was taken to theatres and garden fetes. Within a few weeks he and his queen were attacked by measles. The disease was probably aggravated by a climate to which they were unaccustomed, for the queen died early in July and the king a few days afterward. The British government sent the frigate *Blonde*, under command of Lord Byron, to convey the bodies to Hawaii.

In January, 1824, Messrs. Goodrich and Ruggles were transferred to the station at Waiakea, in the district of Hilo. Keeaumoku (Gov. Cox) died in March, and Kaumualii in May of that year.

George, or Humehume Kaumualii, who, the reader will remember, was, upon his return, practically made the chief of Kauai, shortly after his elevation to power, wrote a letter to King Liholiho, addressing him as "king of the windward islands." This was understood as implying that he was not king of Kauai. A few months afterward Liholiho visited Kauai in an open canoe, with only a few attendants, thus placing himself in the power of Kaumualii, Sr. The latter received him with the respect due his rank, and publicly acknowledged his supremacy. Liholiho thereupon confirmed him in the government of Kauai. Soon after, however, Liholiho visited Kauai in a large vessel. Inviting Kaumualii aboard he secretly gave orders to sail for Honolulu, where he was given considerable liberty, but was not allowed to leave the city. Here Kaumualii, Sr., thus torn from his wife, Kapule, was married to Kaahumanu, the noted widow of Kamehameha. Another chief was appointed to rule Kauai, and Kaumualii was never allowed to return. He remained a staunch friend of the mission, and his education, rank and connections enabled him to exert considerable influence. He felt that he was the rightful

owner of Kauai, and bequeathed it to Kalanimoku and Kaahumanu, in trust for Liholiho.

After the death of Kaumualii, Sr., Kalanimoku visited Kauai to receive the submission of the various chieftains. George Kaumualii made ready his gifts and went forward to present them; but on the way he was met by Kiaimakani, and others, who induced him to head a rebellion, telling him they would make him king of Kauai, as it ought to belong to him, as it belonged to his father. On May 8, 1824, George attacked the fort at Waimea, but was repulsed. Kalanimoku sent a vessel to Honolulu for reinforcement. A thousand men soon arrived, and the insurgents were defeated, losing about 140 killed, Kiaimakani among them. Kalanimoku, merciful to young Kaumualii, gave orders that he should not be killed, but taken alive. He was captured, kept as a prisoner at large, but treated with kindness.

The schools flourished; pupils increased in number far more rapidly than books could be provided with the limited means at hand. However, in April of this year, Mr. Loomis finished printing an edition of 3000 copies of elementary lessons in reading and spelling. The chiefs were so elated that they called a meeting "to make known," they said, "our resolution concerning learning and the law of Jehovah." They declared their intention to receive instruction themselves, to observe the Sabbath, to serve God, obey his laws, and to have the people taught. Kaumualii, Sr., who was yet alive, had long been in favor of it. Kalanimoku said these reforms would have been introduced long before, had it not been for the habits of the king, who, though an admirer of the missionaries and their teachings, loved liquor far more ardently, and when under its influence forgot all the good resolutions he ever made.

Kaahumanu, whose name and fame looms large in the history of the islands, selected some of the most advanced pupils to teach in other districts. Before the end of 1824, fifty natives were so employed, and over 2000 natives had learned to read.

The captains of visiting vessels were notably influenced by the missionary morale. In March of this year Captain Arthur drew up an agreement for the promotion of temperance, to be printed by the mission press; in November, Captains Claaby and Paddock offered an amendment, which was adopted, against permitting women to go on board ships for immoral purposes. A distillery owned by the government was, in April, closed by order of the authorities.

About this time Puaaiki, a blind native, attracted wide attention by fervency of spirit in prayer. He is said to have had a pathos of feeling, a fervency, fluency and propriety of diction which seemed little short of divine inspiration.

Auna, the Tahitian deacon, returned to his own island in March, on account of the illness of his wife, and in September Rev. Ellis accepted the offer of a passage to the States, a change of climate for Mrs. Ellis seeming imperative. He arrived in New Bedford in March of the following year and went to Boston to consult with the Prudential Committee, and traveled through the northern and middle states in the interest of the missionary cause. Eventually he went to London, where he was employed as Secretary of the London Missionary Society.

The missionaries were astonished at the progress of religion in the islands. In February, Kaahumanu wrote to Kalanimoku of her purpose to visit all the principal islands to promote Christianity and education. She was a woman of remarkable personality and vigorous aggressiveness. Before the missionaries came she was proud, haughty, selfish, and often oppressive. Now she was the benevolent, kind, laborious and indulgent mother of her people, whose devotion to her seemed to be without limit. When she visited Hilo, the change in her character seemed to the people so remarkable that they called her "the new Kaahumanu."

In June, ten persons of note asked to be admitted to the church. These included Kalanimoku, Kaahumanu and Opiia.

Two others, one of whom was Puaaiki, "the blind Bartimeus," were admitted at Lahaina in July.

In February, 1825, Hoapili-wahine visited Lahaina and held prayer meetings. The princess Nahienaena, daughter of Keopuolani, was a constant attendant. Interest became so pronounced that Mr. Richards was kept busy all day and often far into the night, dealing with enquirers. When he awoke in the morning, he usually found several persons waiting to ask questions. Kaamoku was an instructor for females, and her experience was similar to that of Mr. Richards. As Nahienaena grew in grace, she became disgusted with the behavior of those living under former customs, and as her clientele had become so large that she could not give personal attention and advice to each, she asked that only the most sincere and those who could read hymns, should call. Wahinepio, a female chief who had been one of the principal agents in leading the princess to worship idols, was angry, and in derision forbade any to enter her house who couldn't dance the hula. She shortly thereafter earned the hatred of the community by selling Leoki, a beautiful girl of sixteen, to Captain Buckle, of the British whaleship *Daniel*, for sixteen doubloons (\$160.00). Leoki wept bitterly, and begged to be spared, but Wahinepio was heartless. Her conscience hurt her later, however, as did that of Judas Iscariot. She carried the money to Nahienaena as the rightful owner of the people, but the princess refused to touch it. It was thereupon sent to be added to the treasures left by Liholiho, but no one was found willing to be its owner.

On the 3d of October, upon the completion of a seven months' cruise, Captain Buckle returned, but found a law in force forbidding women to visit ships. He threatened to burn Mr. Richards' house, and to kill him and his wife. The next day fifteen sailors came ashore armed with knives and pistols and waving a black flag. By order of the chiefs the mission was surrounded by two hundred armed natives. The sailors marched up the hill with threatening mien but, seeing the

array of bayonets, turned around and marched right back again.

A very different influence was exerted by Lord Byron of the British frigate *Blonde*, which brought home the remains of the king and queen. This ship touched at Lahaina May 5, 1825. Boki and his wife landed in the first boat, and when they told of the death of the king and queen, the natives joined in a great lamentation, which resounded through the village and was soon heard around the island. Two days afterward the *Blonde* arrived at Honolulu, where the bodies were landed and were buried with great pomp and circumstance.

A special council of the chiefs was held June 6th to determine upon the succession. They decided to support Kauikeauli's right to succeed his brother; the government to continue in the hands of the regency, and the young king to remain under the instruction of the missionaries. The King of England sent word to the new king saying: "If you wish to be a great nation, your people must be educated. Missionaries are men sent to teach people right principles. We of England have reached our present estate because of education and Christianity."

Lord Byron showed himself a decided friend of the mission. During his stay of two months he won the hearts of the people of Waiakea, and they insisted thereafter in calling the locality "Byron's Bay." The missionary movement in Hilo had exerted a great influence for good. Beside Mr. Goodrich, Honolii was stationed here and Hopu had labored also. Kaa-humanu had strengthened the work materially when here with Lord Byron.

Then came Kapiolani, the chief who was not afraid. She had learned of Jehovah and no longer feared Pele. She crossed the island in the interest of education and Christianity, and on her way from Kau, passed by the volcano. When she told the natives that she intended to prove that Pele's alleged kapu was pau, they were greatly frightened and distressed, and begged her not to venture near the abyss. In violation of

all former usages, Kapiolani ate ohelo berries and threw stones into the crater. She then knelt down and prayed. The natives looked on in wonder, but were so convinced, and exclaimed: "Great is Jehovah of the haoles! Pele is no more."

The story of her bravery flashed over the island as on the wings of light. Around her own residence at Kaawaloa, the station of Mr. Ely and Hopu, and the neighborhood of Kama-kau, Kapiolani was active and influential. Her people gave heed to instruction; intemperance and other vices disappeared, and Christianity and sobriety prevailed. At Kailua, too, the work prospered.

Mr. Stewart felt compelled to leave the mission through the ill-health of his wife, and sailed for England October 15th on the English whaleship *Fawn*, Captain Dale having offered them free transportation. They reached the States in August of the following year.

In 1826 much of the good work of the missionaries was undone by the advent of a fiend incarnate, Lieut. John Percival, in command of the U. S. armed schooner *Dolphin*, which arrived in Honolulu January 14, 1826. He was licentious to the last degree, and chafed under the moral laws and restrictions which the chiefs had established. He blamed the missionaries for the observance of the Decalogue, and threatened to shoot Mr. Bingham. The king was but a boy of fourteen, and was easily awed by the tawdry tinsel worn by the officer, and frightened by his threats. Mr. Bingham was attacked by the sailors, who tried to club him. One struck at him with a knife. Each time his life was saved by the interference and protection given by Hawaiians.

At Lahaina the captains of whaleships, encouraged in crime by the shameless Percival, rebelled against laws in force there, and sent a mob to the house of Mr. Richards for the purpose of killing him. Not finding him home, they proceeded to burn all property owned by him. His main residence was, however, protected by natives. Kekauonohi, a female chief, commanded all females in the village to flee with her to the

mountains, which order was promptly obeyed. The sailors pillaged all houses, and destroyed much property. Notwithstanding all their trials, the missions prospered.

The U. S. sloop of war *Peacock*, Captain Thos. App Catesby Jones, arrived at Honolulu in October and remained till January. He conducted an investigation into the behavior of Lieut. Percival, condemned him unmercifully, and commended the missionaries for their teachings, and their unselfish labors in behalf of education and Christianity.

Early in 1826 the new house of worship in Hilo was finished, and at Kailua a second house of worship was erected by order of Kuakini, 78 by 180 feet in size. Hawaii at this time reported 80 schools with an average attendance of 2000; Maui reported 1500 pupils, the larger half of which were connected with the Lahaina station; an examination in Honolulu in April showed 2409 pupils from 69 schools. The total number of pupils under instruction on all the islands was given as 20,000, and the number of books printed for the twelve months past, was 74,000.

Mr. Loomis, the printer, becoming ill, sailed for the States early in January, 1827, where he continued to print books in the Hawaiian language. With the opening of this year, Kalamimoku (Billy Pitt), whom the natives regarded as "the iron cable" of his country, anticipating death from dropsy, sailed from Honolulu for Hawaii, where he wished to end his days, as he did, peacefully, advising his friends to follow the Christian teachings. John Young, an Englishman who had been strangely left on the island of Hawaii, began to make his influence felt by reason of his natural ability for leadership. He expressed surprise over the triumph of the Gospel.

Captain Clark, of the English whaleship *John Palmer*, made trouble at Lahaina, where he had enticed several women on board his vessel. When remonstrated with, he threatened to destroy the village. Hoapili took vigorous measures to enforce the law, but Captain Clark sailed away to Honolulu, taking the

women with him, after having promised he would send them ashore.

A reinforcement of the mission sailed from Boston, November 3, 1827. Its members were: Revs. Lorrin Andrews, J. S. Green, P. J. Gulick, E. W. Clark, with Dr. G. P. Judd; Stephen Shepard, printer; their wives; and Misses M. C. Ogden, Delia Stone, Mary Ward and Maria Patten, assistants, to reside with the several mission families. This party arrived at Honolulu March 31, 1828. The arrival of Mr. Shepard gave a renewed impulse to the printing department. Two presses were in constant operation, and four natives had been taught the printer's trade. By October 31, 900 copies of hymn books, tracts, and portions of scriptures were printed, including an edition of 20,000 copies of the Gospel of Luke. The other Gospels were printed by the American Bible Society under the superintendence of Mr. Loomis.

The station at Waimea, Kauai, was resumed in 1828. Governor Kaikioewa, one of Kamehameha's veterans, was delighted with the return of Mr. Whitney. During the interim, he and his wife Kapule (formerly the wife of Kaumualii), had held services, and made tours of the island to strengthen the people in the new faith, as Kaahumanu had done on Hawaii. Up to this time no missionary had ever been on Molokai, with its population of 5000, except a short visit once by Mr. Chamberlain. Nevertheless, the natives had sent for school books, and there were 1000 pupils. Maui, Lanai, and Molokai showed a total of 225 schools with a total attendance of 12,956, which shortly increased to 18,000, out of an estimated population of 37,000. Of these, only about one-fifth were under fourteen years of age. The majority were middle-aged people, while there were a number over sixty. On Hawaii, Kekupu-ohi, one of the wives of Kaleiopuu (who was king when Cook discovered the islands), learned to read after she was eighty years old.

In August, 1828, twelve men and eight women sought admission to the church at Kailua. Among them was Keoua, the

wife of Governor Kuakini, and of highest rank. Mr. Ely, who opened the Kaawaloa station in 1824, was compelled by serious illness to leave the islands, and embarked, October 15th., on the *Enterprise*, of Nantucket, Captain Swain.

October 7, 1829, the king issued a proclamation over his name and that of Kaahumanu and ten other of the highest chiefs, in which he declared that the laws of his country forbade murder, theft, licentiousness, the retailing of ardent spirits, Sabbath-breaking and gambling; and that these laws were in force against foreigners residing on the islands, as well as his own people. The English consul threatened them with the vengeance of Great Britain if they should presume to make any laws without first obtaining the sanction of the king of England. The king replied that the law applied to the British consul as well as to the humblest native.

The king was not long without support. The American sloop of war *Vincennes*, touching first at Hilo, arrived at Honolulu October 14th., one week after the proclamation issued. The next day Captain French, her commander, had an interview with the king and chiefs, and read a letter from the President of the United States, which said that he had dispatched a ship of war to show the friendliness of the United States toward the kingdom of Hawaii. After congratulating the king on the progress of civilization and religion in his dominions, and recommending earnest attention to the religion of the Christian's bible, it proceeded to say: "The president hopes that peace and justice will prevail between your people and citizens of the United States who visit Hawaii, and that law will be enforced. Our citizens who violate your laws or interfere in any way with your regulations, merit censure and punishment. We have heard with pain that certain of our people have at times violated your laws, and have sought to punish them." The letter then asked favor and protection for the missionaries, and all who walked uprightly. The president "had heard of the misconduct of Lieut. Percival, and had brought him before a court of enquiry."

The *Vincennes*, taking a number of the principal chiefs, visited several ports of the other islands, remaining some two months. Opiia, sometimes called Piia, the sister of Kaahumanu, died September 12, 1829. She was one of the earliest, most constant, and most efficient friends of the mission, and died in great peace. Very different, however, was the passing of Boki, the governor of Oahu. His visit to England caused him to be proud of his attainments, and he became supercilious, and careless in morals and manners. Hearing of some mythical island covered with sandalwood, he outfitted two vessels toward the close of 1829 and sailed away. One vessel, failing to find the island, returned. The vessel Boki sailed on did not, and its fate is unknown.

With the opening of 1830, it was decided to establish a station at Waimea, Hawaii, where there was a high tableland, a cooler atmosphere, and a climate to which invalids might repair. Governor Kuakini rendered prompt and generous aid Dr. Judd and Mr. Ruggles, with their families, occupied the station, to which Mr. Bingham repaired in June.

There were at this time buildings of worship in every village of importance on Maui, and in many villages on the other islands. Kalanimoku and nine friends instituted a prayer meeting shortly after the missionaries came, and issued orders that none but sincere seekers after truth, who were known to be moral and upright should attend. These "kapu meetings" as the natives called them, were largely attended. Women then, as now, took the most interest. The average weekly attendance throughout the islands was placed at 1000.

The third reinforcement sailed from New Bedford at the close of 1830. It consisted of Revs. Dwight Baldwin, Reuben Tinker, and Sheldon Dibble, and Andrew Johnstone, with their wives.

In January, 1831, the missionaries concluded that the native school system had about reached the limit of its efficiency. The number of pupils was 52,882. Of these, the majority could read, write, and had a superficial knowledge

of arithmetic, which was the limit of the knowledge possessed by the teachers who but a few years previously had been unlettered. The whole system was therefore coming to a standstill for lack of competent instructors, therefore it was decided, in June, to establish a high school at Lahainaluna to educate teachers for common schools, and prepare young men for the various departments of missionary labor. It was planned, also, to develop it into a seminary. Lorrin Andrews was chosen as its first principal, and opened the school with twenty-five pupils.

While the well-disposed, easy-tempered, and inefficient Boki was governor of Oahu, he had, in open violation of law, allowed twenty grog shops to exist in Honolulu. His wife, who governed during his absence, pursued the same course. After his death, while the king and chiefs were visiting the other islands, she made war-like preparations which alarmed the whole group, and seemed determined to foment a revolution. In this state of affairs, Kuakini, at the command of Kaahumanu, left Hawaii in charge of Naihe and repaired to Oahu, where he took charge as governor pro tem. He closed the grog shops and gaming houses, and established an armed police for day and night duty, and strong enough to enforce obedience. Many begged the privilege of selling liquor to foreigners only, but Kuakini ruled with an iron hand.

The reinforcement which sailed for the islands in December, 1830, arrived June 7, 1831. Another party sailed from New Bedford November 26, which comprised Revs. J. S. Emerson, D. B. Lyman, Ephraim Spaulding, W. P. Alexander, Richard Armstrong, Cochran Forbes, H. R. Hitchcock, and Lorenzo Lyons; Alonzo Chapin, physician, with their wives, and E. H. Rogers, printer.

Naihe died at Kaawaloa, at the close of 1831. His widow, "the admiraable Kapiolani", exerted herself with singleness of heart to promote the best interests of her people, and was of great help to the mission.

The reinforcement arrived May 17, 1832. Kaahumanu

was ill at the time but insisted on having them brought to her bedside. She rapidly declined, and died June 5th at the age of 58. Some days before her death, she settled all her worldly affairs, called the young king and gave him advice and instruction. She appointed her sister Kinau to be her successor. Kaahumanu had won the affections not only of her own people, but of foreign residents also. A funeral sermon was preached at every mission station on the islands. At Waimea, Kauai, Mr. Whitney preached a sermon which was long remembered, and shortly thereafter went to the Society Islands. Mr. Gulick was left in charge of the station till October, when he was joined by Mr. Bingham. Up to June, 1832, 577 natives had joined the church at this post. The high school at Lahainaluna now had sixty pupils, including the king. Three new stations were opened this year: one at Wailuku, Maui, in charge of Mr. Green, and where a schoolhouse was erected capable of accommodating 2000; one at Kailua, Molokai, in charge of Mr. Hitchcock, and one at Waialua, Oahu, with Mr. Emerson in charge.

At this time Lahaina was largely resorted to by whaling vessels. Fourteen captains and 150 sailors were seen at one time at public worship. A fifth reinforcement, consisting of Revs. B. W. Parker and Lowell Smith and their wives, and Lemuel Fuller, printer, sailed from New London, November 21, arriving at the islands in June, 1833. Rev. John Diell also arrived, as seamen's chaplain under the auspices of the American Seamen's Friend Society, and November 28th. the first chapel built by that Society in foreign lands was opened in Honolulu, with a reading room. The mission voted to open a similar chapel, with a reading room in Lahaina.

In the early part of this year, 1833, the young king, who, like all Hawaiians, loved the sea, saw a brig which he greatly desired to possess, but the price was \$12,000. Kinau, the regent, after consulting with other chiefs, refused to comply, saying that the debts of the nation must be paid before such an expensive vessel could be purchased. But the young man

wanted his pretty brig and wouldn't be satisfied without it. He resented the efforts of those who gave him good counsel, turned away from them and sought evil companions. He tried to drown his disappointment in the flowing bowl. With liquor came the hula, and Satan came also.

Hoapili, who was a near relation, hearing of these things, hastened to Honolulu, hoping to dissuade the king from his evil course, and if possible induce him to remove to Lahaina, where there was more morality and less temptation. The king thereupon assembled the chiefs and people; declared the regency at an end, and took into his own hands the power of making laws, and of life and death. He then published a new code of laws, prohibiting only murder, adultery and theft, and announced his determination to remove Kinau from public office and appoint her who had been the wife of Boki as his agent for the transaction of business. This would have pleased the dissolute. But when about to pronounce the name he strangely hesitated, walked up and down, and finally spoke in a loud voice the name "Kinau." When his companions asked him why he had changed his policy so suddenly, he said: "I couldn't speak the word. Strong is the kingdom of God."

The princess, who was naturally giddy and volatile, was, however, alarmed by the dangers which beset her brother. She hung on his arm, and besought him with tears to listen to the chiefs whose age, experience and moral principles made them worthy of confidence.

It was soon understood throughout the islands that the supreme authority did not command good morals and encourage piety as formerly. "The thought of the chief" was their name for law; and when he changed his course, they felt free to follow his example. Great numbers forsook the schools, teachers ceased their labors, and attendance at church was largely reduced. In Honolulu, grog shops were reopened and distilleries started. Other immoralities were revived, and in the Hilo district a few returned to idolatry. However, the influence of the missionaries prevailed to a large extent, and

the wave of crime and immorality gradually subsided. The higher chiefs generally kept on their christian course. The means of intoxication was excluded from nearly all the islands except Oahu. Kuakini, who had returned to his former home, visited all parts to Hawaii to repress disorder, punish crime, and promote good morals.

In June, 1833, Messrs. Alexander, Armstrong and Parker, with their families, were chosen to open a mission in the Marquesas Islands. They sailed from Honolulu July 2d. and after touching at Tahiti, came to anchor at the island of Nuuhiva, August 10th. Finding that settlements were small, far apart and difficult of access they returned to Hawaii the following year.

At the opening of 1834, a hand press and type was sent to the high school at Lahainaluna, and on February 14th the first newspaper ever printed on the islands was issued, called "Ka Lama Hawaii" (The Hawaiian Luminary). Shortly afterward "Ke Kumu Hawaii" (The Hawaiian Teacher), a semi-monthly religious paper for general circulation, was commenced at Honolulu, and soon had 3000 subscribers. Mr. Tinker was its editor.

An additional reinforcement embarked at Boston December 5, 1834, which reached Honolulu June 6, 1835. It consisted of the Rev. Titus Coan, Henry Dimond, bookbinder; E. O. Hall, printer; with their wives; and Misses Lydia Brown and E. M. Hitchcock. The latter went to reside with her brother and to engage in teaching. Miss Brown went to teach the natives to weave cloth from cotton, which was growing wild at that time.

Mr. Johnstone withdrew from the mission this year to engage in teaching the Oahu Charity School, for the children of foreign parents.

In 1835 the school attendance increased materially. Members of the mission at all times taught school in addition to their duties as ministers. Hoapili was so impressed by the

advantages of education that he issued an order that all children over four years of age on Maui should be sent to school. The Lahainaluna school this year had 118 students in geography, arithmetic, trigonometry, composition and Greek. The following year there were seventeen churches with an average aggregate attendance each Sunday of 14,500, or 900 for each church.

The population of the islands seemed now to be decreasing. A census in 1832 gave 130,313 inhabitants. Another in 1836 gave 108,597, a decrease of 21,734 in four years.

The number of missionaries on the islands was already large, but to hasten the time when the board might withdraw support and leave them to their own resources, a strong reinforcement was sent out. This party sailed from Boston December 14, 1836, and consisted of Revs. Isaac Bliss, D. T. Conde, Mark Ives and Thomas Lafon, who was also a physician; Dr. S. L. Andrew, S. N. Castle, assistant secular superintendent; Messrs. Edward Bailey, Amos S. Cooke, Edward Johnson, H. O. Knapp, Edwin Locke, Chas. McDonald, Bethuel Munn, W. S. Van Duzee, Abner Wilcox, Misses Marcia M. and Lucia G. Smith, teachers.

The Catholic Mission, which arrived here in 1827, as a result of jealousy and misunderstanding, were expelled from the islands in 1831, but returned from California in 1837. They were not kindly received, either by rulers or people. The government at Honolulu ordered them to depart. This they refused to do, and the matter was reported to the king, who was then at Lahaina. He confirmed the order and they were put on board by force.

Illness and death had made inroads in the mission force the past few years. Mrs. Rogers and Mr. Shepard died in 1834. Dr. Chapin and wife, who was seriously ill, returned to the States in 1835. Mrs. Dibble died February 20, 1837, and Mrs. Lyons May 14th. Mr. Dibble's health failed, and he embarked in the fall of 1837 for the States.

A boarding school had gradually come into operation at Hilo, under Mr. and Mrs. Lyman, who were deeply interested in educational matters and labored faithfully in the interest of Hawaii and Hawaiians. Rev. Coan, who labored so effectively in the missionary field, also took a lively interest in the school. A central school for girls was also established at Wailuku, Maui, in 1837. Hawaiians are generous to a fault. When the mission decided to open a new school or build a new church, they found the natives ready to contribute to both projects of their own accord. Of those under instruction many were learning to spin and weave. The cultivation of cotton, begun in 1836, had been considerably extended, and Kuakini erected at Kailua a stone building 30 by 70 feet for the manufacture of cloth therefrom. Sugar cane culture was also receiving attention.

The A. B. C. F. M., in addition to the large sums of money spent in the evangelization of Hawaii, had sent many laborers to various parts of Europe, and had many others laboring among the various tribes of Indians throughout the United States. As churches and schools increased the demand for preachers and teachers became so great that it was financially difficult to meet the demands. It became necessary, therefore, to reduce appropriations, and it seemed that it might be necessary to leave those in foreign fields to their own resources.

The year 1838, consequently, did not open auspiciously. The church, however, had been gaining in strength and influence, notwithstanding the shock sustained in 1833 through the unfavorable acts of the king, as already mentioned. Nearly 5000 were admitted to the church in 1837, and 2400 others had been propounded for admission. On Molokai, 228 were added to the church in November. In the districts of Hilo and Puna, on Hawaii, Mr. Coan baptized and admitted to the church 4993 for the year, and placed 500 others on probation. This was all the more remarkable because of the high standard now demanded for admission. A few had in the beginning of

the work been admitted hastily. Candidates were now admitted only upon the most searching examination, and after a probation of many months under the watchful eyes of teachers, preachers and companions.

The spread of christianity and culture exerted a marked influence upon every avenue of life and labor. Better houses were built, more land was cultivated, more crops raised, and the spindle and loom were busy in weaving cotton cloth under the patronage of Kuakini. The practice of other mechanical arts was growing. Schools were better taught, better attended and better supported, competent teachers being supplied by the high school at Lahainaluna.

The chiefs, however, were still the sole proprietors of the soil, and of its inhabitants, and the people were, therefore, virtually slaves. No one then owned the land he tilled, the fruits he gathered from it, nor any of the products of his own industry. Since the introduction of christianity, the chiefs had to some extent ameliorated the hardships which naturally prevailed under a system which carried with it such injustice to the masses. By encouraging the people to aid in the support of schools they allowed them to dispose of a part of their earnings. By sanctioning christian marriage they conferred a freedom of choice which had not hitherto prevailed. And they had even requested the missionaries to send them someone skilled in the science of political economy and government.

On the return of Mr. Richards, in 1838, the king and chiefs requested him to become their chaplain, teacher and interpreter, and engaged to provide for his support. He was asked, also, to lend assistance in matters of jurisprudence, and to help outline for them a stable form of government. The light was breaking o'er a darkened land, and the nation was looking forward eagerly to the dawning of a new day.

The cultivation of sugar cane began to attract the attention of sea captains and others. The trade in sandalwood had brought to those in power unexampled wealth, and led to new commercial methods, new laws, and a liberal constitutional

form of government which originated with the king's Bill of Rights of June 7, 1839.

Behold Hawaii of today, with freedom of worship, free schools, and a stable form of government which assures justice and liberty alike to all. And lest we forget, hats off again to the pioneers who laid the foundation for this most progressive, prosperous outpost of American civilization.

THE KAMEHAMEHA CENTENARY, 1819-1919.

BY W. D. WESTERVELT.

THE death of the great king of Hawaiian history occurred May 8, 1819. The native Hawaiians desired a memorial season in 1919, which would commemorate some of the more important incidents of the life of Kamehameha and fix in the minds of the younger people of the Hawaiian Islands certain events and dates connected with both his life and death.

In 1920 comes the one hundredth anniversary of the landing of the missionaries from America. The important changes of Hawaiian life during the hundred years between 1820 and 1920 would very properly be brought out in the celebration of the coming of the missionaries and the results of their work. This celebration would practically come under the direction of the Hawaiian Board of Missions, a body almost entirely composed of native Christians and the descendants of the missionaries. Such a celebration is being perfected.

The Kamehameha Memorial, however, rightfully received its inception from some of the native societies and was adopted by the Legislature of the Territory of Hawaii in the following act:

AN ACT

MAKING AN APPROPRIATION FOR THE CELEBRATION OF THE ONE HUNDREDTH ANNIVERSARY OF THE DEATH OF KAMEHAMEHA I.

BE IT ENACTED BY THE LEGISLATURE OF THE TERRITORY OF HAWAII:

SECTION 1. There is hereby appropriated out of the general revenues of the Territory of Hawaii the sum of nine thousand dollars (\$9,000.00) for the purpose of defraying the expenses of celebrating in a fit and proper manner the one hundredth anniversary of the death of Kamehameha I, the Conqueror of the Hawaiian Islands.

SECTION 2. The governor shall appoint five (5) persons in accordance with the provisions of Section 80 of the Organic Act, one of whom shall be chairman, who shall constitute a commission to be known as the "Kamehameha Centenary Commission".

SECTION 3. The commission shall take all necessary steps to celebrate the anniversary aforesaid in Honolulu, City and County of Honolulu, on the 11th day of June, 1919, and on such days immediately before and after the said day as it may deem advisable.

SECTION 4. All money expended for this appropriation shall be upon warrants issued by the auditor upon vouchers approved by the chairman of the said commission.

SECTION 5. This act shall take effect upon its approval.

Approved this 19th day of April, A. D. 1919.

C. J. McCARTHY,

Governor of the Territory of Hawaii.

In this Act, a commission of five persons was authorized. Hon. Chas. McCarthy in the early part of May appointed on this commission Major James D. Dougherty, Prince Kuhio Kalaniana'ole, Mrs. Alice Macfarlane, Mrs. Lahilahi Webb, and Mr. W. D. Westervelt. This commission was authorized too late for any observance of the centenary of the death of Kamehameha, therefore the legislature thought best to combine the celebration of the important events in the time of Kamehameha with a regular holiday period falling in the early part of June. This was also done in order to bring the celebration into a definite time devoted to the regular Territorial Fair.

The Commission, having the foregoing facts in mind, met for the first time May 6th, 1919, and selected Mrs. Alice Macfarlane as chairman and W. D. Westervelt as secretary, and out-

lined parades, tableaux, addresses, etc., for June 11th and the days immediately before and after. At a later meeting, Senator Charles E. King was chosen to assist the Commission as director-general.

A large number of prominent Hawaiian gentlemen and ladies acted on various committees or helped perfect floats and tableaux. There are too many names to allow quotation of individuals and their work. Each one of the prominent assistants has been granted a beautiful medal commemorating the "Kamehameha Centenary".

Sunday, June 8th, was observed by a splendid union service held in the old Kawaiahao Church, which was crowded to the doors. The chief address was made by the pastor, Rev. Akaiko Akana. Many of the Hawaiian societies were represented.

Tuesday, June 10th, in the evening there was a large patriotic parade of all nationalities, — Japanese, Chinese, Korean and Filipino societies turned out with floats and also marched in companies. Many public schools were represented in the long lines. The Honolulu Rapid Transit Co. fitted up one of its cars to represent the typical life of a Hawaiian family in the time of Kamehameha. Several large floats represented some of the more important events of Kamehameha's life.

When Captain Cook discovered the Hawaiian Islands, Kamehameha as a chief of high rank was made welcome on the ship commanded personally by Captain Cook and was entertained all night. This was November 26, 1778. Vancouver and others of the young officers became very friendly with the young chief. The welcome by Captain Cook was the scene portrayed on one float.

A long, large stone of great weight, on which human beings were said to have been sacrificed, had, according to the legends, been carried from the island of Kauai to Hilo and placed in a temple and called "The Naha Stone". The prophecy was made that whoever moved or lifted the stone would become

ruling chief of the islands. Kamehameha moving the stone was the scene on one of the floats."

After Kamehameha had conquered Maui, he started to wage war on Oahu. He had a large army of chiefs and their warriors. They stopped to rest and feast on the island of Molokai. Here Kamehameha called his chiefs together for consultation, but overlooked the high chief Kaiana. Vancouver charges Kaiana with having an overpowering ambition which led him to think he could overthrow Kamehameha. On Molokai he learned that his desires were discovered and that he might be seized and stripped of his power. Kaiana, therefore, took warning, and while the council was in session fled with his men in canoes to Oahu and enlisted against Kamehameha. This was the third among the Hawaiian floats.

Another very important event in the life of Kamehameha was enacted on a float which bore the legend, "Ka Mamala Hoe Kanawai" or "The Law of the Splintered Paddle." The word *Hoa* is also frequently used instead of *Hoe*. *Hoa* means "to strike on the head." The meaning is practically the same. The float represented Kamehameha rushing to capture some fishermen in Puna and catching his foot in a crevice of lava so that he was helpless. One of his enemies turned back and struck him with one of the broad blade canoe paddles and then ran away. When Kamehameha became king he called this man to him and pardoned him, saying that he had attacked the innocent fishermen that he might secure them as sacrifices, but that he was wrong. Then he laid down the law that no one was to injure the person who was practically helpless. "The old people and the children were to sleep by the roadside unharmed."

Thousands of people lined the streets as the parade, led by some fine pa-u riders, passed through the central part of the city to the Capitol grounds.

The old palace, now called the government building, with its fine open lanais, was used for an excellent series of tableaux, in the evening, which were entirely in the hands of native

Hawaiians. The tableaux showed the infancy of the great king and the care given him by special chiefs called kahus during his childhood. His refusal to drink a cup of awa after it had been improperly passed to him, and the break between himself and the chief Ki-walao, resulting in the death of Kiwalao and the victory over the island of Hawaii was given an especially strong representation. The final battle of the Nuuanu Pali, in which the chief Kaiana lost his life and Kamehameha became supreme, was also well displayed.

The forenoon of Wednesday, June 11th, was given up to the Hawaiians, that they might render respect in their own beautiful way to their most honored ruler.

In the morning a great procession of Hawaiian Societies, in their appropriate regalia, marched from Aala park to the Judiciary grounds, where, circuiting the Kamehameha statue, they continued to the Executive grounds opposite, for the literary and musical exercises, and listened to eloquent speeches on lessons learned from the paternal government and statesmanship of Kamehameha. The addresses were made by Rev. Akai-ko Akana in English and by Mr. Edward Bright in Hawaiian. The entire program of exercises was well conceived and finely carried out. It received deserved praise from the visitors from the mainland as well as from the people of the islands.

The chaos of plans was taken up in the first meetings of the Commission May 6th to 12th. About three weeks was all the time that could be secured for the entire work of preparation. Of the nine thousand dollars appropriated by the Legislature to cover expenses, about seven thousand dollars was used.

As a memento to be prized by the societies and the hard workers taking part in the exercises, one hundred and fifty badges were prepared in bronze. The medals were very appropriate—a helmet and a lei on which were the words “The Kamehameha Centenary, 1819-1919” formed a bar from which hung a pendant with a view of Kamehameha warding off a flight of spears in his remarkable exploit of taking a short spear in one hand and by rapid twists turning away other

spears hurled at him with full force; while at the same time catching spears with the other hand and hurling them back against his assailants. On this pendant was also a reference to the *Mamala hoe* or "Law of the Splintered Paddle."

HAWAIIAN MISSIONS CENTENNIAL.

IN April, 1920, the Centennial of Missions in Hawaii will be celebrated in a fitting manner. A year or so ago the Hawaiian Board of Missions appointed the following committee to take charge of the celebration: W. R. Castle, Chairman; G. P. Cooke, Vice-Chairman; G. S. Waterhouse, Treasurer; H. P. Judd, Recording Secretary; F. D. Lowrey, D. H. Hitchcock; Mrs. W. F. Frear; Miss Mary Winne; Mrs. A. S. Baker (for West Hawaii); Mrs. R. L. Hughes (for East Hawaii); Mrs. M. B. Hair (for Maui) and Chas. A. Rice (for Kauai). This committee is being assisted by a committee from the Hawaiian Mission Childrens' Society, consisting of Mrs. Theo. Richards, Mrs. W. J. Forbes and Joseph S. Emerson, and by a committee appointed by the Governor—Messrs. L. A. Thurston, C. H. Cooke and A. L. Castle. Rev. Doremus Scudder, formerly pastor of Central Union Church, was chosen as Executive Secretary and began his duties in September.

It is contemplated to put through a program, beginning on Sunday, April 11 and concluding Friday, April 16. The following tentative schedule has been arranged:

Sunday, April 11. Thanksgiving services in all the churches. A song festival in the evening.

Monday, April 12. Cousins' Society Day. A reception and house-warming at the Chamberlain House.

Tuesday, April 13. Education Day. Participation by the schools and addresses on the subject of "Education".

Wednesday, April 14. Hawaiian Day. A parade of Sunday Schools in the morning, followed by a brief rally

at the Capitol grounds, after which a luau will be held at Waikiki and aquatic sports, etc.

Thursday, April 15. Political and Civic Day, to be in charge of the commissioners appointed by the Governor. It is hoped that this may be made a public holiday, and that there will be one or two prominent speakers from the Mainland to give addresses.

Public pageant.

Friday, April 16. Commercial, Industrial and Agricultural Day. Closing with tableaux in the evening.

TRADITION OF PAAO.

Translated from "Kuokoa" of Dec. 29, 1866, and Jan. 5, 1867.

PAAO came from Upolo after having quarreled with his brother Lonopele, and settled at Kohala, where he built the temple of Mookini. From him was descended Hewahewa, a noted priest of the time of Kamehameha. Lonoikawai was chief of Hawaii at the time of Paaos arrival, in the sixteenth generation from Heleipawa, in the eleventh century.

It was said that many gods asked Paaos to accept and worship them as his deities. He had built his house on the edge of a precipice from which the koae (Bos'n bird) flew. Whenever any gods came to him Paaos told them to fly from that precipice. The one returning alive should be his god and receive his worship. But when they leaped from the cliff they were dashed to pieces at its base.

Lelekoae, one of these gods, came and called to Paaos, saying: "Here am I also." Paaos replied: "Yes, here you are, but who are you?" "A god am I," he replied. Paaos turned toward the precipice and said: "Leap then from that cliff; if you come to me alive, you shall indeed be my god." That god leaped and was killed; so also another, Makuapali, was killed.

After them came Makuakaumana. He flew like a bird from the pali and was not killed but arrived alive, so he became the god of Pao. After this Pao wanted a priest, so he told Makuakaumana, his god, that they had better go to a foreign land together and find a priest. The god consented, so they sailed over the seas to the utmost boundaries of Kahiki and found a priest and returned, bringing with them many images of gods. Thus image worship was introduced into these islands. The priest built other temples. After this Pao sent his priest again to Kahiki, and he so taught the people that image worship became an established practice.

At that time Lonoikawai and his chiefs became very wicked and Pao thought of sending to Kahiki to get Pili, a grandchild of Lonoikawai. Laau, the son of Lonoikawai, was Pili's father. Laau had sailed away to Kahiki and married one of the women there by whom he had this son Pili, according to the Ulu genealogy. Upon his arrival he was very much liked by the chiefs and people, for he was very pleasant-mannered. Kanaloanui was the name of the boat in which he came, though it is not known what kind of boat it was.

Pili upon settling in Hawaii was accepted as ruler by chiefs and people. Pao and Makuakaumana and many others came from Kahiki. Pao established the custom of kapu-o (prostration), introduced the puloulou (royal insignia), and also changed the method and forms of heiau building.

COMING OF PAAO AND OTHER CHIEFS.

Pao was a priest. Makuakaumana was a prophet. Pili (who was Pilikaaiea) was a chief, a descendant of Laau-alii, as shown in the genealogy of Heina. According to the story of Pao they were from the land of Wawau and Upolo, and lands on the west. Kaakoheo was the sea-cliff of the mountain ridge of the land of Upolo, where grew the malaia grass which Pao brought with him to Hawaii. A sister of Pao was named Na-mauu-malaia.

Paa0 left his birthplace because of a quarrel with his brother Lonopele, who was a priest, a man of supernatural power (*mana*), very intelligent, knowing everything pertaining to his character as a priest. They were also both farmers. Lonopele cultivated his land, which was near the sea-shore, planting very many fruit trees in his field. Once the fruit was all stolen and he thought that Paa0's son was the thief who had done the mischief. He went to Paa0 and told him that his boy had stolen all his fruit. Paa0 said: "Are you sure you are right, and that your fruit was really stolen by my son?" Lonopele said: "I saw your boy going there, but did not see the taking, yet think he did the mischief." Paa0 said: "If that is so, I will cut open the stomach of my boy, and if your fruit is not found, then what?" Lonopele replied: "That is not my affair; that is for you to decide. When have you seen a person's stomach cut open? You are the only one responsible." Paa0 made answer: "No, I will cut open my child's stomach, and if fruit is found, you are right, but if not, then you are wrong." And with a mind determined in its course, Paa0 caught the boy and executed the deed, but found no fruit. Then he bid Lonopele to look and see, but instead, Lonopele replied: "You perhaps are the one to look into your child's stomach.

Paa0 was full of sorrow at the death of his boy and said to his brother: "I will find a way to kill your child; you have betrayed me. I will leave this land."

He thereupon repaired and refitted his canoes, and when they were finished they were in excellent condition. He placed a restriction upon them that no one should touch them until the *lolo* sacrifice should be offered, dedicatory for a prosperous voyage. The *kapu* had been established some time when the son of Lonopele came along and slapped on the sides of the canoes. Paa0 heard the sound and asked his servants to find out who was there. They reported that the son of Lonopele was slapping the canoes. Paa0 commanded them to kill the boy, which was done, whereupon the sacrifice to the

canoes was made and the kapu lifted. He took the body and placed it under the hinder part of the canoes. In about two or three days Lonopele came to the place where the canoes were, greatly troubled, trying to find his boy who, he feared, was lost.

Lonopele was attracted by the fine finish of the canoes and remarked upon their good qualities. While looking them over carefully from end to end he noticed flies buzzing under the after part of the canoes. Upon search here he found the body of his boy, and saw he had been murdered. Therefore he was sick with sorrow for his child and wailed grievously, and crazed with anger against Paa, said: "You have done a strange thing, O Paa, for you have killed my boy. You sought an opportunity against him to take his life. Therefore arise and depart from this land, for you are a bad man." Lonopele carried away his boy with mourning love song.

At this banishment by Lonopele, Paa made all things ready necessary for an ocean voyage. The name given his canoes was Kanaloa-a-muia

Thirty-eight people went on the canoes, including two servants and the chiefs Pili (son of Kaaiea), and Hina-au-kekele, his wife, and Hina-au-aku and Namauu-o-malaia, the sister of Paa. Paa was the priest and director, and he annointed himself for this voyage of discovery. When they were ready to sail, Paa stood on the canoes, while some prophets were standing on the Kaakoeho cliff. One called to him, saying: "O Paa, I must go with you." Paa asked: "Who are you?" He replied: "I am a prophet." "What is your name?" asked Paa. "Lelekoae is my name." Then Paa called to him: "Leap and come to the canoes." He leaped and fell on the stones below and was killed. In like manner a number of prophets were tested by Paa, that he might understand their power, but all failed save one.

Paa sailed forth and was nearly out of sight of land, one precipice only showing on the sea. A prophet stood on the cliff and called: "O Paa, I will go with you." He called two or

three times before Paaο heard it, and then but like a faint whisper. He looked back and saw the prophet standing on the brink of the cliff. He shouted: "Who are you?" The man said: "A prophet." "What is your name?" "Makuakau-mana." Paaο cried out: "The canoe is full, there is but one place left, a spot in the momoa." "That is my place." Paaο told him to leap. The prophet flew like a bird and struck on the front of the canoe, catching the boat with his hands. He called out: "Here I am; where is my place?" "On the platform (pola) between the two canoes."

Thus was fulfilled the prophecy of Kalaikuahulu:

Thou partakest of the flying fish,
Skimming easily through the sky;
Traversing the dark ocean waters
Lest tremulous be the foundation house of heaven,
Of Kane, of Makuakaumana,
Of the plain compassing the land;
Encircling the borders of Kahiki,
Flying, thou didst alight on Kaulia.

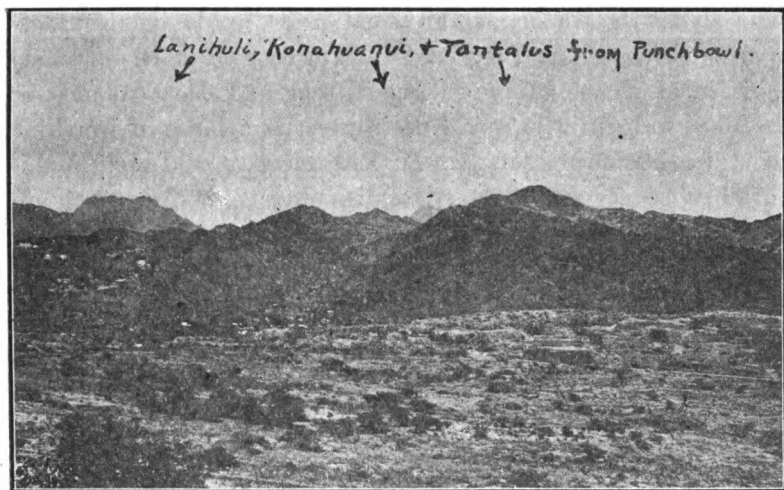
When Paaο was out upon the ocean Lonopele sent many and great troubles. One of these was the strong kona wind, as also various tempests, rain squalls, and the house-breaking tornado. But Paaο had prepared mats to cover his canoes so that the water falling and blowing over into them was shed. While the wind was blowing fiercely, with much rain, and the waves ran high, two kinds of fish, the aku and the opelu, leaped up and skipped in the waters and quieted the waves around the canoes. Because of this aid, both of these fish were made kapu to the Paaο family and their descendants, up to the time of Hewahewa, the high priest of Kamehameha.

Paaο came to the land of Puna in the island of Hawaii. This was the first land he entered and here he built his first heiau as a temple for his god, and named it Ahaula. It was a luakini temple. From Puna Paaο went to Kohala, landing at Puuepa where he built the heiau called Mookini (multitude of dragons). It was known as the luakini of Paaο.

It was thought that Paa'o came in the time of the high chief Laaualii because Pili became the ruling chief of Hawaii after him. According to the genealogy of Hanalaanui Hawaii was without a king, therefore it received the chief from Kahiki.

HAWAIIAN TRAIL AND MOUNTAIN CLUB.

BY LAWRENCE H. DAINGERFIELD, *Secretary.*



TO KNOW Nature intimately one must search for the inmost shrine or holy of holies generally far from the haunts of men, which is frequently difficult of accomplishment. The spirit of Nature refuses to come forth in naked, pristine beauty where man's hand reaches forth committing sacrilege in the form of artificial endeavor. Splendid as are the efforts of man in the arts and sciences, in engineering and architectural feats, they are crude and immature when compared with the titanic physical or microscopic chemical acts of Nature.

The delicate ferns atremble on branches almost as fine as the web of the spider, the wood violet, purple as the deep sea under a cloudless sky, and nodding to one from fibrous four-

foot stems, the clear, cool brooks, that leap and cascade from pali wall to rock-ribbed gulch, the sweet-voiced minstrels of the wild, singing in the koa or lehua wood, or the lark that gladdens the mountain air as it spirals toward the sun—these do not encroach upon the haunts of man. The odor of gasoline and the shriek of the locomotive seem to be abhorrent to the timid dwellers of the wild and even to the clear water of the dashing brook.

Thus it behooves the lover of Nature to go reverently and with undestructive hands far afield if he would be rewarded with a vision of the Paradise of Nature there to be revealed. This inner shrine of the mountain tops and deep canyons is no place for him who would destroy—it is a place of worship, of soul refreshments, of pure air and thoughts held high in the thrall of beauty and mystery, of listening to the love songs of the feathered warblers, of a deep and sympathetic communion with the timid and unconsciously beautiful creatures and objects in their secret dwelling-places, at home with Mother Nature.

And, in the nighttime, when the moon shines forth, casting shimmering, ghostly light over the deep chasms, across the palis, turning into a snowy whiteness the cascading streamlet, and a deep stillness hovers over the woodland—a brooding darkness seems to whisper to the bird-life: “Be still! Listen! He who created all things is abroad in the night, in the valleys, on the mountain crests, out over the glistening, swelling sea, and far, far out in the endless spaces amid the stars! Listen for His Voice! This is the witching hour!”

The true lover of Nature goes forth in the spirit above depicted, reverently as a pilgrim to some sacred shrine, treading holy ground, his heart, eyes, and ears atune with the beauty of the Infinite, seeking that which is beautiful and good—uplifting to a soul imprisoned by the artificialities of the everyday world.

It is to such as this lover of the Wild that the Trail and Mountain Club appeals and calls into its brotherhood, to culti-

vate a living, speaking acquaintance with the hidden realms of the forest, the mountain crests, or tortuous valleys. Here the members find real and wholesome soul refreshment and a rebuilding of the tired and neglected tissues and muscles. In the upper researches of the hills and mountains, the "trail finders" make glad their lives, breathing in the cool, sweet air, gladdening their souls by casting far-seeing eyes across the distant reaches of green fields and hills, even out over the blue and purple ocean.

Like Balboa of old, casting a yearning and startled vision westward for the first time by European eyes across the waters of the Pacific, and vowing that some day he would travel hence, so stand the travelers of the trails on the high eminences, viewing the hills and the sea, vowing like vows of conquest of hidden and beautiful Nature.

In the language of the Constitution of the Club, we here insert the "Object" and "Membership" paragraphs, letting them speak for themselves:

The object of this Club shall be: To encourage intimate acquaintance with outdoor Hawaii:

1. By promoting knowledge of and interest in objects of natural interest in the Territory and the ways and means of getting there;
2. By the construction and maintenance of trails and roads leading to the same and of rest houses incidental thereto;
3. Through promoting interest in travel, more particularly by foot, through the mountains of Hawaii;
4. Through enlisting the coöperation of the people and the Government in preserving the forests and other natural features of the Hawaiian mountains, and generally by publication and otherwise to convey information concerning the object of the Club, both to residents of the Territory and to persons residing abroad;
5. By acting in coöperation with other Clubs or Associations having similar objects, as well as with Government and other Tourist Bureaus, and to exchange privileges therewith.

Any person signing an application blank, whose name may be approved by the Executive Committee and who shall pay

the initiation fee prescribed by the Constitution, shall thereby become a member of the Club.

Many of the best of the trails of old and comparatively recent Hawaii have fallen into disuse, especially during the period of the World War, and these should be reopened to gladden the hearts alike of the malihini and the kamaaina. It is the intention of the Club to coöperate in every way with the War Department and the Forestry Service in repairing these trails and even opening new arteries to the hills, and posting signs along the way, so that he or she who travels the trail may know exactly the location and elevation of the designated spots, also the distance to the objective, water, rest house, and other elements of interest to the mountaineer. Each trail has its particular symbol on every sign-board, and each board along the trail has its serial number, from *one* to the last board which carries one back to civilization and the walks of everyday life.

The "Official Guide" of the Club at the present time is Gilbert Brown, a careful and enthusiastic leader of long acquaintance with the aisles into the labyrinths of Nature's wilds. Week ends are made happy for the members by his cheerful guidance and never-tiring energy as he leads the way along the mountain paths. Rain is no hindrance to his enthusiasm, for we have hiked along ten miles of fern and bramble-clogged trail in a drenching storm to find him jovial and joking at the end of the struggle with unruly Nature as at the beginning. This is the true spirit of the mountaineer—it is the spirit of the conqueror, not the destroyer—the spirit to battle with the wild elements and smile at every struggle, be it ever so grim or even hazardous. It is a manly spirit—this spirit of the overcomer; and it is this spirit that the Club attempts to create and recreate—a really, true recreation. No matter what may happen on the trail, so long as it is not a real tragedy, the true sportsman smiles at the hardship and calls it a part of the game. Drenched skin, muddy tramping

togs, a few scratches from lantana or algeroba—these are nothing; they only add to the zest and the romance of the thing. Weary muscles, a bruise or two, a great hunger—these are nothing; just think of the blessed bath to follow, the hearty meal, the heavenly softness of the bed and its dreamless sleep, and the enthusiasm with which one may tackle the week's work that lies ahead. The sun may burn you, the rain drench you, the wet branches and ferns smite you, and you slip on the very brink of a precipice, yet you must smile all the while and call it good—this is the rule of the game, the code of the mountaineer. If a yellowjacket stings you, no matter; just think how nice the swollen cheek will feel when Nature's antidote drives out the poison. What the mountaineer takes with him from the hills and dales far exceeds the few unkind things that some of the children of Nature bestow upon him along the way.

Perhaps an enumeration of a few of the better known trails adjacent to Honolulu may be of interest to the reader:

To Tantalus from end of Emma car line, or Pensacola avenue on Punahou car line.

To Pacific Heights; return by Cooke Trail to Nuuanu Valley.

To Rest House, Pauoa Flats; from Emma car line.

To Olympus, Konahuanui, and Palolo Crater, over Tantalus or Cliff Trail; returning by Kaimuki car line.

To Palolo Crater and return; Kaimuki car line.

To Manoa Cavern and return; from Manoa car line.

To Olympus over Cooper Trail; go via Manoa car line; return by Palolo Crater and Kaimuki.

To the Bamboo Forest and Manoa Falls, upper end of Manoa Valley; from end of Manoa Valley car line.

To Bowman Trail; go via Fort Shafter car line, getting off at Kamehameha the Fourth Road.

If one cares to travel in the valleys there are Palolo, Manoa, Nuuanu, Kalihi, ad infinitum. Then there are Waimea and the Sacred Falls, Kaala, and Lanihuli, Koko Head and

Makapuu Point, and always the Nuuanu Pali—all waiting to be explored and re-explored.

Can one now say there is a dearth of places to visit? That when one has encircled a part of the Island of Oahu in an automobile that he has seen all and conquered Nature? That when one has seen Oahu from the deep valleys and from the mountain tops, that he has seen the whole of Hawaii? Oahu is only a small and minor part of the group after all, and what lies beyond in the blue haze across the swelling Pacific is yet more wonderful and beautiful, if that be possible—all in the domain of the Hawaiian Trail and Mountain Club, beckoning from their secluded realms to him who loves Nature reverently, passing along her hidden aisles as though they were holy ground.

SECOND TERRITORIAL FAIR

HAWAII'S Second Territorial Fair, bigger and better in every way than the very creditable one of the preceding year, opened its gates Monday, June 9th, at Kapiolani Park, for a week of educational exhibition and entertainment. From experience gained on the former occasion, everything (except the floral exhibit awaiting steamer arrival the following day) was ready at the opening hour, 10 a. m., and the event, with the military ceremonies attending it, was made memorable by the participation of four army planes, which came up from Luke Field, flying over the grounds in arrow formation as the flag of opening was hoisted, to "music by the band."

It was a perfect day. The officials beamed with self-satisfaction at the attractiveness and completeness of the exhibition, and the provision they had made for everyone's comfort. The public also beamed with expectancy as they thronged the turnstiles for admission and each dropped their twenty-five cent piece in self-registering slot machines, their entrance fee.

The Fair enclosure occupied a much larger area of the Park than did that of 1918, to provide space for the greater display of products in all lines, as also a liberal division assigned for the amusement section. The plan of the grounds too differed in several respects for betterment, the buildings of more permanent and attractive type, to serve again, and the merchandise displayed therein very effective. The live-stock division flanked the race track on the south, the race track and polo field being encampment grounds of cavalry and infantry troops assigned to aid in the success of the fair.

Near the entrance of the grounds things military of past and present vogue claimed attention, including two types of flying machines, attended by courteous officials to instruct intelligent inquirers and enlighten "Missourians." From this building, to the left, one entered the educational section wherein school work of all kinds, and from all the islands, were displayed competitively, to the marvel of most of us, and the satisfaction of vocational training advocates. Next to this was the exhibit of home economics, women's handiwork, embodying a much larger and more varied and attractive display of needlework than last year, and less appeal to the "inner man" on the war basis plea.

Encouraging progress marked the exhibit of the agricultural division, not only from the diversity of local products, several of which were new to the islands, but also to the widening range of competitors for prize mention, from the out-district school garden to worthy townsmen amateurs, and systematic diversity farm effort, in which Maui unmistakably leads. It was interesting to observe the advance made in the new industries of high grade cement making and products therefrom, as also fuel alcohol made from molasses, for both of which we are indebted to Maui Agricultural Company's enterprise; bagasse mulching paper, the new side product of the Olaa Sugar Co. of Hawaii, and potash, also from molasses, from the Hawaiian Sugar Co. of Makaweli, Kauai.

The floral exhibit again presented a revelation in hibiscus blooms, for it embraced many new creations as a reward for the painstaking effort in late years to test the possibilities of this showy flower. The contributions of Maui and Hawaii to those from Honolulu gardens made a rare, effective display of ferns and flowers, completely occupying the large division assigned to it. Specially attractive was the collection of cut-flowers and French bouquets.

Much favorable comment attended the art exhibit which was large and varied, demonstrating Hawaii's possession of talent of high degree in her professionals, and encouraging promise in the army of amateurs. The collection was not confined to local subjects but included several noted scenes abroad, and embraced oils, water-colors, pastels, etchings, sculpture, design, etc. The division allotted to photography presented a collection of artistic work which was pleasing and instructive, that from what may be termed the semi-professionals evincing an art conception of fine order.

The commercial exhibits this year occupied four large buildings in which were attractively displayed sample lines of many Honolulu firms, covering importations from all lands, of needs, luxury, and labor-saving devices, as also evidences of the progress of local endeavor, among other things, the utilizing of the little menhunes of Hawaii's myth-age to illustrate the development of our striding enterprise, the pineapple industry. The ANNUAL felt complimented, having rescued from oblivion the fragmentary tales of this industrious race of lilliputians of early Hawaii and told their story of tireless energy, we felt gratified that the result of our researches could so fittingly typify the principle involved in this fruit exhibit.

The automobile section represented the combined labors of the various local agencies of the leading machines for the proper display of cars, trucks, motors and accessories. The exhibition was large and attractive, illustrative of the growing importance of this branch of enterprise to the needs and comfort of the community.

Live stock, naturally important, claimed the attention of all interested in animals, irrespective of ability to appreciate the effort being made (as this show well illustrated) to improve the grades of stock of the territory by the liberal importation of prize blue-bloods in horses, cattle, swine, etc. That it runs into large money was demonstrated by the larger number, class, and variety of animals exhibited, to properly judge which called for the services of a recognized expert from across the sea. The poultry exhibit, too, was large and embraced a number of important strains, but the feather tribe are at a disadvantage at this season of the year, when the moulting period robs them of the attractiveness of their dress. Nevertheless, the show was interesting and instructive. Rabbits were also well represented.

The race track and polo field served for drill ground and tent-city of the cavalry and infantry detachments courteously assigned to the Fair Commission, and which contributed largely toward the success by daily military manoeuvres, aviation exhibits, sports, etc., for which the grand stand was the convenient and remunerative observation point.

At the town end of the exhibition grounds was the amusement zone of the Elks' Range which, with the concessions, afforded an apparent endless variety of entertainment, instructive and amusing, with last year's objectionable features eliminated. In keeping with other divisions, this too showed expansion and improvement.

The effectiveness of the electric lighting system of the whole grounds was very marked, and was an incentive for many visitors to repeat their rounds of sight-seeing, or take advantage of the several rest booths of various associations and business houses, or give encouragement to the refreshment booths.

The second day was "children's day" for the free admission of the pupils of the various schools of the city, affording an opportunity that was readily grasped and thoroughly enjoyed by them. Their pleasure amply rewarded the Fair Com-

mission for their suggestion to the school authorities that Tuesday be free day to the pupils, believing it would be of an educational advantage. The estimated attendance at the fair that day exceeded 25,000.

Kamehameha day, Wednesday, the 11th, had special attractions at the fair grounds, according to arrangements with the Kamehameha celebration committee, to follow their exercises of the morning at the executive grounds. Holiday like, the attendance was large, a record-breaking one, but through a sudden heavy shower in the city in the afternoon, despoiling the historic floats, this feature of the evening's entertainment had to be omitted. The sports feature of the day embraced horse racing, military and airplane manoeuvres, and fireworks.

Beside a full afternoon on Thursday of drill and varied military exercises, which was a daily feature, there was introduced a new magnet in the field, the attraction of a cane-loading contest, in which teams representing Maui, Kauai, and Oahu, contested for championship, resulting in Maui winning first honors, with Kauai a close second.

The special attraction for Friday was a "Night in Old Japan," portrayed in various dances by Geisha girls in costume. Saturday held races by the Junior polo teams in the afternoon and Flag Day ceremony exercises under the auspices of the Elk's Lodge in the evening. The fair continued open through Sunday, the 15th, and was without fee.

Thus ended Honolulu's second lesson in Territorial Fairs, for the success of which much credit is due Chairman Edwin H. Paris and co-workers of the Fair Commission, and to Col. R. McA. Schofield, U. S. A., chairman general entertainment committee in charge of all military features.

The total attendance for the week was 142,911, of which 11,088 were passes to the military, attendants, etc., and 6,100 to school children on "kiddies day."

NEW BISHOP MUSEUM MEMOIRS

THE FORNANDER COLLECTION OF HAWAIIAN ANTIQUITIES AND FOLK-LORE.

BY ARTHUR JOHNSTONE.

THE mere mention of folk-lore or myths almost certainly will awaken dim memories of childhood's days. Therein will still be found to reveal the odds and ends of many a primitive mythus, together with a crowd of half-true, half-fantastic fairy tales, made up of incidents and fragments of real myths; and some of the pageant mayhap may even be conjured by the stark imagination of the writer out of nothing at all. The two latter kinds of tales mentioned may quite properly be called myths of myths—tales woven purposely around incidents of genuine folk-lore. Such literary efforts are hardly reliable for serious study, certainly are unfit as a basis for scientific conclusions. Here the reader will likely exclaim, "For scientific conclusions! Are you serious?" Yes, quite serious; and as sober and sedate as that select coterie of capable scientists and anthropologists, namely, Spencer, Huxley, Lang, Lubbock, Tylor and Fiske, among the many who might be mentioned, that have made the science of comparative mythology a reality despite the various theories and wordy disputes of too many of the mythologists themselves. The truth is that too few educated persons are aware that within the last half-century folk-lore has become a branch of the science of man which is technically known as Anthropology, while within the same time comparative mythology has so widened and deepened its scope that it has become a science by itself, closely related to the science of man, as well as to several other cognate branches of anthropology.

In the mythopoeic ages men made myths to explain the unknown forces of nature which were everywhere around them, seemingly alive and most certainly active, and, in too many cases, destructive. At present, in our age of reason, men

largely temper the survival of the primitive myth-habit by substituting therefor a host of foolish political, social, and religious beliefs which measure the persistence and strength of the mythopoeic tendencies inherited from nature. In our time, happily, reason is rapidly gaining the upper hand in directing the popular thought of majorities, so that even before the first half of the twentieth century opened we had ceased to be influenced in any dangerous degree by the authority of the past, or even by present wisdom; in fact, the intellectual and social trend of today is toward veracity in the facts of life with the clearest practical or scientific verification thereof. It is out of the primitive ages, then, where death has scattered her wreaths and windrows of desolation, that, in this latest epoch of time, comes to us this fascinating and scientifically useful department of study—Comparative Mythology. Whenever and however we may meet it let us throw preconceptions away and treat it in the just and scientific manner that the beauty and grandeur of the subject demands.

Before us lie in parts the three latest great royal quarto volumes of the Bishop Museum Memoirs, under the subtitle of the Fornander Collection of Hawaiian Antiquities and Folk-Lore. These massive books are printed on plate paper by the museum press, with the vernacular and English on parallel pages. Throughout the printers have done for them all that art can do, and the volumes are most sumptuous although from the reader's point of view somewhat unwieldy and inconvenient. The plan of the work was originally laid out by the late Professor Alexander, at whose untimely death Mr. Thos. G. Thrum became his worthy and capable successor, who has carried the Fornander literary inheritance to a technical end, and left it with the best literary and critical finish. It is now some fifty years since Fornander ceased active labor on his splendid and meritorious Polynesian works, and it is to connect the late remainder of his unfinished work with the times and readers of the present, that much skillful and critical editorial labor has been required at Mr. Thrum's hands. Men and con-

ditions change rapidly in an age of progress, and hence the strain of redaction, to properly cover the gap of half a century in the thought and theory of savage folk-lore and to connect it with material advancements, has not fallen lightly on the present editor's shoulders.

From the layman's point of view the editorial work will be clearly found to be most exactly done without encroaching on the author's literary preserves. In the public view of Fornander's work, there seems to be, even at this reach of time, no material difference of opinion. He was a most capable man with a mind legally trained, but he was at the same time a man with fortunately a scientific hobby; and, from what we know of his methods by hearsay, he always worked in the deliberate, precise, and painstaking scientific manner, to use one of Scott's well-known subtitles, of "sixty years since". He has, however, fully justified a specialist's claim to public confidence by leaving us a host of facts, which would otherwise have been lost in time, covering Polynesian history, antiquities and folk-lore—some published and some, at a late day, just now issuing from the press. He presumably worked under one or more (for they were many) of the historical or scientific theories in vogue in his day. But these as we now know were largely in conflict with natural facts, and hence were not very reliable in reaching the conclusions now drawn from the same facts by scientific thinkers; happily he has left us volumes of well-gleaned and well-sifted facts which can yet be interpreted in the new light shed by the progress of thought. In another paragraph will be pointed out an instance of where he went wrong by following theory rather than fact, but happily without injuring his work, owing to its late publication and the general increase of laymen's knowledge which will easily correct the conclusion drawn from the false theory.

It will be necessary for the reader's better understanding, here to introduce a brief summary showing the design and scope of the work in hand, which brings into line the folk-lore collections of the North Pacific, with the more voluminous

works on the general subject which have accumulated, during the past century or more, in the South Pacific. Let us begin, then, with Volume IV, of the Bishop Museum Memoirs, which is the first volume of the Fornander collection. It contains in Part I:—The story of the Islands formation and the origin of the Hawaiian Race, which is told in seven chapters. In folk-lore there is the legend of Aukelenuiaiku, a valuable and hoary myth which is probably a primitive mythus or a Polynesian version thereof. The folk-lore of this part closes with the legend of Kila, after giving the history of Moikeha in ten chapters. Part II gives the stories and legends relating to those ancient worthies Umi, Kihapiilani, Lonoikamakahiki, and Kualii. Part III ends the volume of 608 pages with more than twenty legends of local or primitive origin. The second volume of the collection (Volume V of memoirs) contains in Part I, besides the story of Pakaa, the longer legends of Kawelo, in ten chapters, the legend of Kuapakaa, in six chapters, and twelve shorter folk-tales of seventy-five odd pages. Part II of this volume is strong in folk-lore, containing no less than ten longer or shorter legends, three stories of noteworthy persons, brief sketches of old worthies and famous men, the whole rounded out with a group of brief, familiar stories of ancient ghosts and old-time cunning. The concluding third part of the volume of 720 pages contains fifteen mythical tales taken from the Lahainaluna School Collection, accompanied by a note of warning from the editor, and twenty-five traditionary stories on various subjects; the whole ending with a tale of Kawelo, in six chapters, which tell us of his somewhat surprising adventures. The third and last volume of the series (Volume VI of the memoirs), includes in Part I, an account of the ancient religious ceremonies, with the various heathen prayers and notes for the construction of the native temple. This part also contains details of the orders of priesthood and of native sorcery, as well as separate accounts of cultivation and fishing, the whole concluding with two chapters on ancient amusements. Part II embraces selections from

the historical studies and fragmentary notes of the author which include, besides tables chronological, genealogical, etc., the following very interesting subjects: Source and Migration of the Polynesian Race; Traditional Hawaiian History; Hawaiian Origins with Comparative Traditions; Legend of Hawaii-Loa; Story of Kahahana, with Lamentation for, and Notes thereon; On Hawaiian Rank; Events in Hawaiian History; Creation Myths; Traditionary Voyages; and Things Similar in India, etc., and Polynesia. Part III concluding the series will contain chants from the collection of Judge L. Andrews. In this collection the "Hau ka Lani" is now completed by the discovery of three more cantos; besides which there are chants comprising, "eulogies, lamentations, name-songs, prayers, love-songs and other mele—a valuable collection rescued from oblivion," says the editor.

By this outline it will be seen that the scope of this meritorious local work contains primitive Polynesian myths and general folk-lore extending from the most ancient down to comparatively modern Hawaiian times; or it may be called a compendium of the mythopeic ages and periods of old Hawaii reaching even to the times (about 1820 or perhaps before) when the mythopeic faculty of the Islanders first began to feel the control and directing influence of the developing faculty of reason, by coming into touch with the advance guard of civilization which had already reached the islands. The best of our scientific authorities now hold it to be fully proved that the birth of the mythus and folk-tale came through the efforts of primitive men to explain to themselves the nature and meaning of their environment. Yet by primitive men is not meant the merely traceable and almost unknown savages of the universal Stone Age, but those who have already risen far enough in the scale to have reached a point where they were able, even in the rudest myths, pictures, and other domestic or artistic remains, to leave impressed on time the symbols of their individual, or tribal, thought and habit. Such vestiges of primitive science, art, and thought are the chiefest aids

which our anthropologists have in solving, by comparative mythology and folk-lore, the mysteries hidden in the long and glimmering past. We create the world we live in, just as primitive men did theirs, and hence we must interpret their world by their conditions in the past, including what they felt and thought; this we must learn from their myths and folk-tales. But it is also a fact that in its childhood the world was formed out of the simplest imaginations assisted by the vaguest of human analogies; for although ideas are rightly held to be universal, it must be always remembered that the incidents stirring them are local and material, largely, in their influence on man's development and progress. From the universality of ideas it is also deducible that most of modern religions and political superstitions, pseudo-sciences, legendary inheritances, and most in fact of our everyday beliefs are but the analogons and dim survivals of primitive thoughts and ideas which have been sifted through the ages. In folk-lore will be found the types of all the absurdities that are to be seen in modern thought and action—things which were inherited in the course of time from a universal past.

You must always look under a myth or folk-tale to discern its real meaning and to aid you in getting at its true signification. In performing this function it is usual to trace from the nursery tale, as a starting point, to the legend or folk-tale, and thence to the nearest related myth. But here your trouble begins, since it is necessary to trace the myth most carefully to its origin, whether it may be a primitive germ which has become a universal mythus, or is merely a myth of a myth with foreign interpolations and, hence, contradictory local accretions. In such a case you must again search for the right clue to the primitive source. Now at this point enters, or is likely to, another disturbing influence, if the myth is of a secular nature. It is a well-known fact in comparative mythology, that religion and myths, closely related and intertwined in their natural birth, must be separated and kept apart (for purposes of historic and scientific discussion) wherever it is necessary

and practical. In the earlier theory of myths—before the controlling historic and scientific methods came in—this separation was not made at all, and hence there was no progress, but there were guesses galore in the dark which got nowhere and did nothing because they always traveled in a limited circle, beyond whose horizon all guesses are lost in the vaguest of mental limbos. This state of things continued to exist until the recent resurrection of evolution from its grave, wherein all worthy science and philosophy had been buried at the break up of the Greek and Roman civilization. Unfortunately the civilization which followed was retrogressive and soon culminated in the ignorance and scientific stupor of the middle or dark ages, whence come most of the intellectual woes of modern times. The theory that all historical and scientific criticism not agreeing with the scholasticism of the past was to be excluded from the entrance of the great pious domain which at that time covered most of the world, was accompanied by another theory almost as sweeping, that the universal mythology of the world was of the Devil, and therefore could only be studied and applied for the solution of problems up to, but not within, the borders of Palestine—there, any attempt at intellectual penetration would be held to be gross sacrilege to be punished—if possible. Haply and happily this is all changed now, but even as late as the year 1856, and even later, it was a very grave and positive hindrance to the advance of science and philosophy. However the battle was soon fought and Mr. Gladstone was probably the last of the intellectual giants to attack science with the rusty and useless theological gun.

Let us now return to Judge Fornander's work of half a century ago and test it in a single instance by the modern comparative method. On page thirty-two of the first volume occurs a fine Polynesian form of a primitive or universal myth, to the title whereof the author appends the following note: "This famous legend of Aukele-nui-a-iku, has the earmarks of great antiquity and is known in some form or other on several of the Polynesian groups, Aukele, the hero, being

the youngest son of Iku, or Aiku in other lands. The story has marked resemblance in several features to the Hebrew account of Joseph and his brethren, and is traced back to Cushite origin through wanderings and migrations rather than being an evidence of Spanish influence during their contact with this group of islands in the sixteenth and seventeenth centuries. See *Polynesian Race*, volume one page 40." This shows a somewhat startling example of the surviving influence of a medieval priest-theory in the 19th century, that world-wide myths and legends were either traceable to the Hebrew records, or, in heathen cases, were duly inspired of the Devil—a very free and easy method of explaining anthropological problems. But we now know—thanks to the application of scientific methods—that both the Hebrew and the Polynesian legends are derived from the same primitive source. For information the curious may refer to—among other scientific writers—the fourteenth chapter of "The Birth and Growth of Myth," by Edward Clodd, F. R. A. S., who therein states with many details that the Egyptian tale of "The Two Brothers," whence the Biblical account is partly drawn, "is contained in the d'Orbiney papyrus preserved in the Bibliotheque Imperiale, the date being about the fourteenth or fifteenth century B. C." Or those interested may turn to that more accessible work, namely, President Andrew D. White's "Warfare of Science with Theology," where, on page 375 and surrounding pages, he gives much information on this and cognate subjects. On the point in hand he says: "Egyptologists have also translated for us the old Nile story of 'The Two Brothers,' and have shown, as we have already seen, that one of the most striking parts of our sacred Joseph legend was drawn from it." In chapters before and after this President White "makes hay" of numerous similar sacred legends and unhistorical facts. Had Judge Fornander written his able and meritorious work in President White's day, like him, he would have discarded the outworn theory for the new and living facts.

But space warns that we must close this interesting subject about an interesting and valuable work. Stored with much

matter for comparative mythologists, it will be of the greatest interest to science; and to the general reader it will be fascinating as an outlandish and uncouth savage fairy-book—very unlike but very similar in much to the ordinary fairy-book of our childhood. There are two ways in which such a work may be read, either for the stories themselves, or what lies hidden under their outward phases. The first is the casual reader's way, the second is the one which will be adopted by the student and scientist; both ways offer their reward, and where the trouble is undertaken will well repay either way of reading. But there may be some mythological Rip Van Winkle who will suddenly awaken to ask, "What's the use of Polynesian myths, anyhow? Haven't we enough of our own and to spare?" Yea, verily! and let the answer be given in the words of one of the world's clearest and most logical scientists. When Professor Huxley was writing the "Evolution of Theology," he quoted largely from Mariner's "Tonga Islands," which had then been written some eighty years, and as an introduction to his quotations, he used the following words: "But the correspondence between the old Israelitic and other archaic forms of theology extends to details. If, in order to avoid all chance of direct communication, we direct our attention to the theology of semi-civilized people, such as the Polynesian Islanders, separated by the greatest possible distance, and by every conceivable physical barrier, from the inhabitants of Palestine, we shall find not merely all the features of old-Israelitic theology, which are revealed in the records cited, are found among them; but that extant information as to the inner mind of these people tends to remove many of the difficulties which those who have not studied anthropology find in the Hebrew narrative." Even we who have lived in Hawaii have heard the outworn theory of these things preached within the last thirty-five or forty years. But if we have the wit to appreciate the simple words written above by this wise and acute English scientist, we shall have learned a wide and deep lesson in comparative Polynesian Mythology which shall be of future use to ourselves and the world.

HAWAIIAN WAR MEMORIAL

BY J. P. MORGAN.

THE following discussion of the idea of a Memorial to commemorate Hawaii's participation in the Great Conflict, is suggestive rather than critical, and is intended to direct attention toward important underlying conceptions of what we are really striving after when we speak of Memorials; it is an attempt to help toward getting what in the long run will be most appropriate and satisfying to the whole community.

WHAT IS A MEMORIAL.

Is it a building, a statue, a carved arch, a pyramid? No, it is not. Is it a park, a play-ground, a broad road lined with shade trees? Surely not. What is it, then, that the men of Rhodes, Cheops of Egypt, the builders of the Parthenon, of St. Sophia, of Trajan's Column, of the tombs of the Appian Way, of St. Paul's Cathedral, of the Washington Monument,—what is it that the builders of these had in mind? Did they not consider these structures Memorials? Is not the Arc de Triomphe in Paris a Memorial, and if not, what, pray, is it?

A hen sits upon her nest and fulfills one of her functions: she produces the thing she cackles about. If you look at her product, do you see an egg? No, you see an egg-shell. The egg is the vital part inside the covering.

A sculptor, St. Gaudens, sets up a splendid statue of Lincoln. What is the vital part about that? It is the perpetuation of Lincoln's spirit; it is the carrying over into inert bronze of those characteristics of uplifting greatness which men want to *remember*. Memorials are but reminders of something else, agencies of stone or bronze or uttered words that catch up our racial and individual glory into a form that men can understand and honor.

It follows therefore that these things which are called Memorials are designed to beckon us to reflection on a spirit

within the surfaces. The skillful carving and the spread of wealth are not the thing; they are but stimulations to our senses of perception. What we are beholding with the help of our arts is the vigor, the virtue, the justice, the valor—that essential vitality in a thousand manifestations which we rejoice in as an heritage and bequeathe to our children.

This, then, is the true Memorial: the preservation of the memory of great men and great causes; the weaving of the nobility of the fathers' hearts into the lives of the descendants; the quickening of the community into a practical utilization of the ideals we believe in.

BRICKS VERSUS BRAINS.

It is the easiest thing in the world to throw up a pile of rocks and call it a Memorial; it is no great feat to melt down a lot of metal into an heroic statue; but the world balks with might and main at the very difficult task of transforming its enthusiasm for the heroism of the dead into a program for the betterment of the living. One reason for this is that the Living are temporary, while the Dead are permanent; Nakano, Ah Chung, Kealoha, Sing Pong, Ornellas, Jones—types of the men who make up our community—are definite and corporeal beings whose status, no matter how humble or unattractive, is still somewhat in their own hands to improve; but the men of battle and chiefs like Roosevelt are completed beings whom the hero-worshipping instinct loves to dwell upon. It would be a cold world if this were not so, and yet because it is a hardy impulse that directs us to be mindful of the departed, we must seize and examine the less obvious urging to do our duty by our fellows of today.

Let us presuppose accordingly, an agreement on the need and the desirability of works of art that shall express the old idea of Memorials. Let us have those Memorials if our people desire them, but let us realize that they are only the beginning and not the end of our honoring.

In Flanders, in Picardy, on the Piave were the arenas of death. There men's souls and bodies were crushed under the merciless tread of the sabbaton. There, then, on fields stained with the blood of all nations let our most inspired creators of beauty pay the tribute of our finest art. There let us set up our structures; here let us live the Cause. What right have we, secluded in the safest part of the Pacific, to symbolize with marble and cement alone, the passion and the agony of War? We have sent our men to answer the call of arms because it was their duty and their glory to go. We have contributed our dollars because we have confident belief in the right intent of American institutions. But as a result of these offerings are we to be content with statues of the fallen and bond coupons for those who remain? We are not yet out of the woods. The overturning we have just been through was a violent political antecedent to that gradual readjustment of men in their human relationships, a readjustment which we must study, expedite, guard from excesses. And the true Memorial is the high dedication to the task of personal service to those who struggle in dark places, who by unsweetened toil wear out their souls. It is the enthusiastic participation by all of us in the solution of the problems of our islands.

THE TRUE MEMORIAL.

To set up any definitive Memorial in materials would be out of place and out of time at present. For us structures can wait. At best any decision that we might make would be but today's guess. The times are charged with dynamite; we do not know what headlines the morrow's paper may bear. This is the way it is put by Herbert Parrish, one of our clearest-headed Americans:

"The nervous unrest, fear and uncertainty; the attitude of organized labor on the one hand, and the sacrifice of important foundations by ignorant legislators for the sake of votes on the other; the insane agitations of Utopianists—all these things must have time to settle down. The racked body of mankind

needs sun, food and helpful ministering: the coated pills of 1913 will not do."

An attempt to crystallize into a monument, a statue or even a building whatever unseasoned or ancient ideas on this subject we might now possess, would be unjust to ourselves and to our heroes. After all we commemorate the Cause rather than the individuals who served it. We want our Memorial, when it shall be finally conceived to our satisfaction, to stand as a column in the great world Temple of Justice; we want it to mark these islands as a community that rejoices in dealing justice rather than painting its picture.

In line with this, the following suggestion is therefore set down, not for adoption as it stands, but as an indication of a path our thought might well pursue.

Every hamlet and city in the country is going to memorialize this war. There will be statues, rest-houses, gymnasiums, community centers, parks, play-grounds, arches, temples. Some will be beautiful and many sterile. They will represent a huge amount of money stored for the most part in comparatively uncreative, non-productive solemnities. There is something to be said for this, but much against it; and we in Hawaii have it in our power to set the world an example in the avoidance of this established tendency toward the petrification of our memories.

A plastic, serving Memorial! Let us develop it in this way:

1. Our community will first choose a Memorial Committee of wise men and women, strong, forward-looking individuals, the best available.

2. This Committee will solicit funds for what may be called, "An adequate Memorial of the Great Struggle and of those who represented Hawaii in it". With every gift the donor will sign a card stating what he recommends as a memorial and if that is impracticable that he leaves the decision to the Committee.

3. The Committee will appoint energetic groups to inves-

tigate and report on various suggested ideas, and to tabulate, audit and treasure the funds.

4. The Investigating Groups will attack the following problems:

- (a) Statues, buildings, etc.
- (b) Availability of the present island armories.
- (c) A Memorial of Public Service.

5. The Memorial of Public Service will be thus developed:

(a) Trustees will so invest certain portions of the money subscribed as to yield an income available for outlay.

(b) Using this income, the Memorial Committee (those aforesaid wise men and women) will make a high-spirited experiment in the great realm of idealism. Its members will gather individuals into sympathy with some aspect of the work, giving to each a real opportunity to serve in the Greater Army of the Republic. There will be some who will devote themselves to the purification of politics, some to good roads, some to better housing conditions and others to the hundreds of problems facing the living citizens of a living country: social hygiene, proper sewerage, pure water, dietetics for the untutored, kindergartens in all towns and on plantations, improved methods of education, making Sundays and holidays attractive, better moving pictures for the poor, cleaner and more wholesome shops, flushed streets, honest and enlightened politicians, group insurance in business, pension systems, money loans to the poor of good character, lectures and pictures of instruction and amusement, simple explanations to the electorate of the true issues of their ballots, cleansing of jails, improving police courts. This is not the whole list of our community problems; it barely scratches the surface. But with the six or seven per cent income from our invested Memorial Fund, a fund collected now while our outward enthusiasm is keenest, we shall be able to have these and many other activities intelligently directed and developed. These feelers of experiment will then lead us to find eventually the right use for the principal of the Fund.

Vague, unpractical? No, but very difficult. That which men cannot see with their eyes and handle with their hands they call vague. They call the League of Nations a vagary because they can point to materialistic alternatives. But dead is the man and dead the community that damns these New Realities called "ideals". And dead is the man who scorns the Living Memorial.

THE DRAMA IN HONOLULU—A PLEA

BY W. H. LEWERS.

THE drama in our territory is in the position of all the arts here. It doesn't exist except in so far as a few amateurs are interested in it. In fact it is in a worse position than the other arts. We have a few professional painters here whose work is not appreciated at its real worth, and a few musicians, the latter only lately, but no actors. We are indeed in a peculiarly difficult situation with regard to the art of the theatre. The emotional, esthetic and intellectual satisfaction to be enjoyed in the theatre, its cultural aspect in particular, is denied us by the isolation of our geographical position, and our peculiar population, the small proportion of those to whom English is mother tongue. The artists of the theatre, most sensitive to such a condition, are themselves but shadows passing in the night. Their art is the most subtle of all arts and most dependent on conditions.

A painting or piece of sculpture exists whether anyone sees it or not. Acting doesn't exist till the actor does it and the audience sees and hears it. Without the audience it is not created. When it is done it lives only during the instant it is seen and heard; a second of time, a breath drawn, and it is gone. To grasp and detain the actor, to get "a taste of his quality" requires first, a large enough series of audiences to make his stay profitable and second, a house where he may

show his play properly. We have neither of these two requisites to successfully detain a star or a first-class company of actors. The companies we see here, gotten together for work in Australia, or the Orient, stopping for a few nights en route, are not much better, except in their knowledge of the routine of acting, than our best amateurs, and their plays, for the most part farces and sensational plays, are not nearly as good. I am not here considering the theater in its aspect of supreme artistry. A few good amateurs giving fine plays seriously, as well as they can, do more for a community than the visits of a Bernhardt or a Coquelin. The great artist is a supreme joy, but the thing done, even when not so well done, is more important.

If, however, we had here a well-appointed playhouse, the efforts of such actors as we do get, as well as our amateurs, would be better seen and prove more attractive. This brings me to one of the points I wish to emphasize: our need of a theatre. But the theatre I am about to speak of cannot be, in the light of our requirements, a financial success. It must be a non-commercial theatre if it is to have the desired influence in our community. It *must not* be a financial success, but it must be hoped that it *will be* a cultural influence in our social and intellectual life. We should have a well equipped modern theatre, neither too large nor too small, built as all good theatres are in mainland cities, so that it can be shut up tight to keep out street sounds, and for giving matinees. It must be cooled and ventilated by soundless forced draught of air, must be in a convenient and approachable situation, or the people we desire to reach will not come to it, and must have plenty of exits of the most modern and fool-proof kind, opening from the inside on to large fire escapes, so that a panic may never occur, and the house be possible to empty from every part in a couple of minutes. This sounds like a good deal to demand but it is no more than we need and should have. This theatre could also be used for concerts. Our

developing musical taste demands a hall fit to give concerts of every kind in, which we have not now, as well as operas, when we are fortunate enough to have them. It could also be used for school commencement exercises which, on the mainland, are often given in the local theatre, and of course for plays, the real reason for its existence. Perhaps it would not be such a financial failure after all, considering how much it would be used.

For the majority of people the movie show, cheapest, dullest of amusements, will probably continue to be all that is required for some time, but there is a feeling among a large class of people that their day is ending. Intelligent people are demanding more intelligent amusement. The theatre is turned to in a different mood than it was before the war, and before the movie show became the sole and only dramatic entertainment to be found in small cities. What is *our* intelligent minority to do for amusement and culture along these lines? How are we to give the children who are being moulded for our future citizens any idea of the theatre, the best expression of the spirit of a people, as anything other than a *cheap* show? The theatre can be, it has been, it *is*, in other cities and countries, a means of education in the truest, most poignant way, a way that is never forgotten, because it appeals to the heart, the only portion of anatomy neglected in modern American systems of education.

We are nowadays all for efficiency, so called, for the branches of study that will be useful in our money making future, but we forget that the impulses of the human heart, the reactions of personality and character, in other words, the stuff from which all good drama is made, are the strongest controlling motives in life. There is no kind of study that will aid a young man or woman so much in their conquest of life as the properly conducted study of the drama, and the endeavor at its expression, because the drama is the reflection of life itself. A clear voice, good articulation, pleasant manners and address, the self discipline necessary in acting will help any

young person along the road to success, and those helps to success can nowhere be so easily and so well learned, so effectively pointed out to their attention as in the theatre and the study of the drama. This brings me to a second emphasis.

How are these things to be seen and heard *here* in Honolulu? It seems to me that our peculiarities of population and geographical position force us to showing and doing these things ourselves. And in some ways it is a misfortune which is, or can be, disguised as a blessing. In the light of what is written above the efforts of our amateur actors would seem to be our salvation. Amateur acting, when you think of it, always has been our salvation. All the high class plays produced in this territory are acted by amateurs, which is a significant fact. They have sometimes been played before small-sized audiences, but these audiences are growing in size as the plays are growing better, and the acting and stage setting more interesting. The list of plays given below shows a much higher grade of play done by them than by professionals here. Trying as it has sometimes seemed, it is, nevertheless, one way to much that we need here and to much that we will always lack, until some public spirited millionaire endows a theatre for us, and maintains a first-class company.

As early as 1853 Honolulu had a theatre built for a company of amateur actors. They gave regular performances of the plays they liked and were well patronized by the public. At intervals since then plays have been given by amateurs here but solely for the amusement of those who gave them, or for charities. But there is now a new spirit about the drama abroad in the world. It manifests itself in an interest in plays of ideas, as compared with plays for amusement only. A play of idea can be developed along comedy lines, can be full of fun, be a screaming farce in fact, and also teach a **grand** truth. By all means let us have a few such grand truths taught here in this way. We can give good plays by the coöperation of the elements of our own community of all grades and classes.

Theatrical art, besides being a most subtle and delicate art,

is at the same time the most democratic of all arts, so there seems no reason why the different elements of our population cannot come together in the production of good plays, and have the experience prove of benefit to all, without vulgarity or snobbishness in the personal relations thus created. We should all be learning life, learning to work together and play together, and who knows but that in this playwork some better understanding of American ideals may not be evolved. All our different elements of population have got to come to some sort of mutual comprehension, arriving slowly at that coördination, that singleness of aim in civic expression that will make our life here a thing that interests us and will interest all who come here. It seems to me that no better way can be found than the one I mention.

Something of this has been dimly felt here in the last few years by the Footlights, a club of women, later a club of both men and women, who have put on fine plays. Mrs. Roger Noble Burnham with her organization known as The Lanai Players, has given many types of plays. The Mills School and Oahu College have also done good plays. The boys of the Honolulu Military Academy have given a Shakespeare play each year. Does anyone doubt that these children have been benefited by the drill in correct speech and carefully controlled action, that they, as well as the ladies and gentlemen taking part in the plays given by them, have gained poise and a knowledge of literature, world literature, in this way? Leaving out of the question the adult amateurs, who can look after themselves, and considering the growing children, it seems as though Honolulu could well afford to pay good salaries to a professor of phonetics and two or three assistants, to give each public school pupil an hour's drill every week in correct English speech, through the study of the drama. Nothing would so quickly weld our differing nationalities into a common whole and produce a population with the same decent standard of speech and thought and action. Nothing would so quickly bring about mutual understanding, because the drama is built

on emotion, and emotion, inseparable from life, is a universal thing. Gesture and pantomime are pretty nearly the same the world over.

The easiest way to touch and teach a child, to touch anyone, in fact, of any age, is to appeal to their emotions, and in this way through poems, scenes from plays, entire plays, not only Shakespeare, but good modern plays, comedies and dramas done in the schools, lessons in conduct, morals and manners could be indelibly impressed. I am not suggesting here the study of the drama for the sake of the drama, nor the sort of study done in universities by those diletante who want an excuse for wasting time and money, nor am I suggesting that we try to make actors of our children. That, thank heaven, cannot be done, but I am suggesting an interesting way of teaching the English language and the instilling of American ideals. If done interestingly, it will be effectively done. If done stupidly it were better not done at all. There is not time in the regular classes of the schools for a teacher to drive home lessons in English speech. It takes three years for the average Hawaiian or Oriental child to learn enough English to even begin to study properly. If this that I suggest would shorten the time it takes to give the pupils a fair knowledge of English idiom by six months, it would be worth while doing, and it could go on with the other studies and help them all. Mrs. Day recognized this fact and tried to help the situation with her Children's Play House, but it should not be left to the occasional enthusiast. It should be a carefully arranged programme consistently carried out.

A recently published paper by Prof. M. M. Scott, one of our most experienced educators, emphasizes this need of language study; also an address by Prof. Wm. Lyon Phelps, who has observed the problems of education here. Dr. Bunker has also mentioned this in all his addresses. The theatre as an educator is being more and more understood in America. It is even prophesied that soon every university in the land will have its university play house, where the drama, in its relation

to life as critic and teacher, will be studied. The place of the theatre in American life has been in the past notoriously that of mere amusement, something to which the tired business man's jaded wife took him to get him good-natured. But the American business man is becoming more sophisticated, more like the business man of Europe. He wants to see something in the theatre that has some thought in it, some beauty of expression and color, some reflection of life, something that will appeal to a mature mind, not the sort of thing that the undergraduate and the flapper think is "perfectly sweet". The theatre in America has formerly been dominated, as indeed American literature has been, by the Sweet Young Thing. That is all very well for the sweet young thing, but she grows out of that stage in three years' time and wants something better and she is beginning to say so, also her children, better brought up æsthetically than she was, want something real in the theatre, not the marshmallow candy of drama. How are the young and sensible people of Honolulu to get this relaxation and help? As I have said before, by doing it themselves. Our small band of amateurs are self-sacrificing and earnest. Perhaps they do not realize how much they are really doing towards our culture. At least they should have a good theatre to do it in.

As a matter of record it may be illuminating to note a partial list of the plays produced here in the last few years. A mainland city, I think, can show no more interesting repertory. Most of them have been light and amusing but some of them have been the reflection of life through literature; that combination, that fascinating blend, which touches the theatre with mystery and beauty and gives it its perpetual hold on our sympathies and imagination, which makes it the best kind of teacher.

It is suggested that any effort at any art which has contributed so much of what is really good and great to the intellectual life of a community is worthy of careful consideration, both for the thing done and the doers of it.

Really good plays done in Honolulu by amateurs from 1914 to 1920: The Amazons, The Taming of the Shrew (for the Shakespeare Tercentenary), The Importance of Being Earnest, The Twelve Pound Look, Helena's Husband, Androcles and the Lion, Masks and Faces, The Twig of Thorn, The Golden Apple, Rosalind, Alice Sit by the Fire, The Wonder Hat, Joint Owners in Spain, The Piper, A Thousand Years Ago, Julius Caesar, The Merchant of Venice, Quality Street.

It will be seen that eighteen plays of excellent quality have been produced in the period mentioned. There have been as many or more farces and comedies of slight interest produced as well as pageants and other dramatic offerings.

The Punahou Pageant must not be forgotten, nor some ballets influenced by the great Russian art theatres. These all form a respectable body of work.

REMINISCENCES OF AN AMATEUR COLLECTOR

BY J. M. LYDGATE.

THE following notes of a tour of the Islands of Molokai, Lanai and West Maui fifty years ago may be of interest from a historical as well as a scientific point of view. I was a boy at Punahou and had developed a boyish enthusiasm for botany and the Hawaiian Flora, which attracted the attention and interest of Dr. Hillebrand, so that when he was going to spend the summer of 1869 in a collecting tour of these Islands he proposed that I should accompany him as his assistant.

I was a pretty sturdy, active boy, fond of adventure, and ready for any kind of experience in the open, and with my interest very much whetted for the discovery of new plants that no one else had ever seen.

I wrote home to my mother for permission to go, and emphasized to her the fact that he was a very fine, moral man, whose influence upon me would be most salutary. I knew that this would appeal to her, and be likely to secure the necessary permission, and so it did.

As soon as we could get away, after the close of school at Punahou, we set sail one afternoon in June, in one of the little schooners of those days, for Kaunakakai, which we reached about the middle of the following afternoon. Kaunakakai was then the favorite resort of Kamehameha the Fifth, who escaped thither whenever he could, and lived the simple life in old Hawaiian style. There was a fine grove of coconuts, with a few grass houses, and a few retainers in charge of them. The king wasn't there at the time, but his people had instructions to treat us well, which they did during the short time that we were waiting for the arrival of our horses. These came very soon, and we mounted and rode away for Kalae in the interior, with a native attendant, and a pack animal for our belongings, which included a bulky supply of drying paper and two tin collecting cases.

This brought us to Kalae, and the ranch home of the Myers family about dusk, and quite ready for the generous though simple meal which followed.

Myers was a German of long residence on the Islands, who had married a superior Hawaiian woman, as the frequent custom was in those days, and they were rearing a large and sturdy family of industrious boys and girls, who pretty well ran the small ranch and silk plantation, and took care of the home place. Myers himself was a man of superior education and intelligence, and was very much interested in our scientific pursuits, and was always ready to render any assistance that he could. He was agent for the Board of Health, in charge of the Leper Settlement, which kept him pretty busy, as there was then no local superintendent, and no resident physician, in fact no physician at all on the island.

We remained there some weeks, making it headquarters for excursions into the mountains in all directions.

We would start out in the morning after an early breakfast, with a native assistant who was not only an efficient guide and helper, but was a wonderful compendium of Hawaiian lore and a perfect walking encyclopedia of information about Hawaiian plants, and their properties and values. He knew every plant in the mountains intimately, and had a Hawaiian name for every one of them. We could never "stump" him. And he didn't make them up as he went along; they were always the same, and we knew enough to check him up. Such knowledge is one of the lost arts among the modern Hawaiians, most of whom know far less about these things than we do, and it is a matter of wonder to them that we should know these things or be interested in them.

We found a number of interesting things in this region,—the forest cover was then down quite close to Kalae,—and in the surrounding country. There were a good many new lobelias; a new yellow violet, shrubby and woody, a veritable miniature tree; a very interesting new hibiscus, the kokio, which has since been made a new genus of. This we found on the top of West Molokai, just a few straggling trees, on their last legs, and long since extinct. And from the pali sides back of the Leper Settlement we brought home the splendid *Brighamia insignis*, discovered there by Mann and Brigham a few years before. The pali slopes were fragrant with it growing out of the rocks like a big cabbage, with the heart cut out and filled with clusters of creamy-white flowers.

Another find of this same pali region was the Mahoe, which, however, was not in flower but in fruit—nuts about the size of butternuts or pecans—so that its exact place in the flora could not be determined, and only recently has it been found again, in flower, so that it could be properly placed. We saw only the one tree, and for a few minutes only, yet that tree left so strong an impress on my boyish memory that when some 40 years later I was exploring the upper reaches of the

Olokele gorge on Kauai, it occurred to me that it was the sort of place to find the Mahoe, and almost immediately, some fifty yards away, I spotted one of the trees. In all the intervening time I had never seen it.

Dr. Hillebrand was President of the Board of Health, so that we naturally visited the Leper Settlement. We remained there three days, which gave me a chance to see it pretty thoroughly. I think there were about 800 inmates living scattered about in a straggling village, with very few of the advantages and conveniences of life,—a very different place from what it is now. There was a kindly, middle-aged matron in charge, and we stayed with her. Of course there were some very bad cases, that were positively repulsive in their distortion, but mostly they didn't look bad, and apparently they didn't feel bad. They seemed to be as happy and contented as other people. In those days they had regular work to do, which went far toward keeping them contented.

In those times there was a precipitous zigzag trail over the pali from Kalae down into the settlement. One day, when we were going over, we ran across an unfortunate Hawaiian who had been struck by a falling stone, started by someone higher up on the trail, which came crashing down through the undergrowth, and hit him in the head, fracturing his skull badly and leaving him pretty badly mangled.

Dr. Hillebrand took the case in hand, and with the simple instruments available, performed the rather delicate operation of trepanning, with the fortunate result that the man recovered.

After we had pretty well worked over that section of the island, the whole central and western portion, we moved on to the eastern section, establishing ourselves at Kaluaaha, at the old mission station which had been the former home of the Hitchcocks, and then later of the Forbes.

It was then the home of one of the Rogers boys, a bachelor, who sort of rattled around loose in the roomy, rambling old house, which had fallen more or less into neglect and disrepair.

As I remember it, he led a rather irregular, meagre kind of an existence; he gave us the free run of the place, and we took care of ourselves, going and coming as we pleased, and ministering to our own wants in our own way. Many spreading fruit trees testified to the fine old mission garden of bygone days, and I remember in particular the great Scandent fig trees loaded with the most luscious little black figs.

From there we explored all the ridges and valleys of that section of the island, sometimes following up the bed of the stream in the bottom of a valley, and returning by the same way, and sometimes varying the plan by ascending the ridge, far up into the interior, and then dropping down into the valley for the return. This was of course the better way, as it gave us the different ridge and valley conditions, which were apt to produce a different class of plants. Also we didn't cover the ground twice. But we ran the risk of stumbling onto a sheer precipice or waterfall that we couldn't descend, and sometimes we took our lives in our hands, and ran risks that were inexcusable except on the basis of necessity,—we simply had to get out. Often we had to make long and arduous detours through a dense jungle to avoid these inaccessible places. This of course detained us unduly and we never knew what time of night we were going to get home.

We no longer employed a guide or helper. We generally wanted to go to places that lay outside of the knowledge and experience of the ordinary guide, and as for cutting trails,—that was too slow for us. We broke our way or crawled through.

By this time we had gathered up so large a collection that it was a good deal of work taking care of it. Every day's outing meant two botanical tin cases full of new plants to be cared for, to be labelled, dried, classified and packed away in old newspapers in bundles and boxed for easy transportation. The drying, between sheets of porous paper, like blotting paper, was a slow and lengthy operation, especially with fleshy plants like the lobelias, of which there were a great many.

And these especially had to be handled with the utmost care as, in one stage, they became so soft and mushy that they would fall to pieces on the least provocation. Still another class, the articulated, would break up at the joints, and they had to be treated with a bichloride of mercury solution.

The whole collection in the process, had to be changed every day into fresh blotters, while the old ones were spread out to dry. There was so much of this work to do that we soon found that we would have to give about half of our time to this indoor work, much as we preferred to be in the open.

One of the trips that I remember with special satisfaction was that to the summit of the island, and the head of the Pelekunu valley.

At that time Kamehameha the Fifth had a gang of woodcutters and a camp at a high elevation, not far from the summit, from which the wood was hauled to the coast and shipped by schooner to Honolulu. We availed ourselves of their roads and trails so that we could ride most of the way.

All of a sudden we broke through the jungle to the brink of the great pali that dropped to the valley below. It was foggy, as it generally is in that region, with swirling mists and clouds swept up from below, but we could get evanescent glimpses of the magnificent panorama from time to time. But even more interesting and appealing to us was the splendid show of Hawaiian begonias in full flower, in great banks at our feet. This was my first experience of this, one of the loveliest of the begonias, and it made a great impression on me.

On our way home from this trip I was drawn into a vain attempt to explain and justify to our Hawaiian guide for the occasion of interest in the Flora and our purpose in making these collections. The only justification that he could understand for all this arduous and patient collecting, day after day, was that in some unknown way these plants had magical properties—"mana"—that could be turned to material advantage in the hands of the haole kahuna, and I finally had to let it go at that. It was a perplexing problem, not alone to the simple

Hawaiian, but to a good many intelligent white people, what we were doing collecting so much "rubbish" out of the mountains, and why we were so enthusiastic about it; and we were put down as a couple of cranks, with "bats in the garret."

If at the start I was pretty ignorant of the Flora, I soon "caught on", at least in a superficial way. We had with us a copy of "Mann's Enumeration" in Latin which was little more than a bare list of the Hawaiian plants then known. I studied this night and day, whenever there was a spare moment, and this, taken with my daily contact with the plants themselves, soon familiarized me with the field, and made me a fairly intelligent collector. My eyesight, too, was sharper and surer than the Doctor's, so that I spotted many a rare and valuable specimen which escaped him. He had to wear glasses all the time, and whenever it was foggy or rainy his glasses clouded up so that he couldn't see much of anything, and at times I had to take him by the hand and lead him over the dangerous places.

Thus I became increasingly useful to him and sometimes he would trust certain sections to me for special examination, and I was very jubilant when I brought home some new or rare treasure "on my own".

Thus we finished Molokai and made ready for Lanai and Maui by boxing up our collections and shipping them to Honolulu.

(To be continued.)

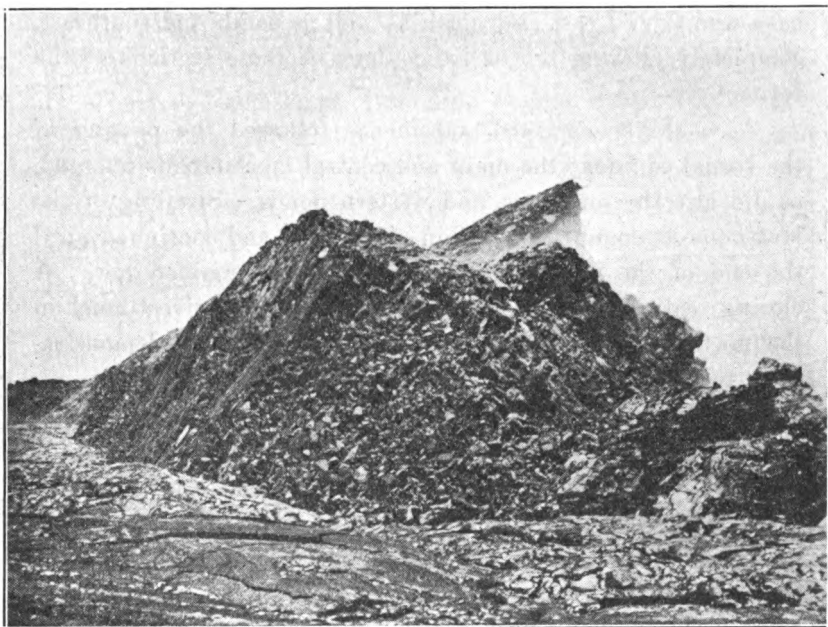
REMEMBER THESE NAMES: Voters and women, here are the names of the members of the house of representatives who broke their pledges and by the most unscrupulous political trick that ever disgraced a Hawaiian legislature killed the woman suffrage bill:

Robert Ahuna, Lorrin Andrews, John Brown, Jr., J. S. Chandler, George H. Holt, Jr., James K. Jarrett, Levi L. Joseph, Samuel K. Kaahu, E. K. Kaaua, J. S. Kalakiela, D. K. Kaupiko, Jonah Kumalae, David M. Kupihea, Evan. da Silva, James Werner.—*Advertiser* Apl. 2, 1919.

KILAUEA ACTIVITIES IN 1919

BY L. W. DE VIS-NORTON, HAWAIIAN VOLCANO RESEARCH
ASSOCIATION.

THE year 1919, one of the most spectacular in the known history of the great Hawaiian volcano, opened with a slight subsidence of the lava column, compensated by extensive increase in liquid flooding. Rapid rising had set in by the 10th of January, and, by 19th, overflows were in



Section of Sharply Uptilted Rim of Halemaumau Pit, Kilauea Volcano.

progress. The Halemaumau floor had taken the appearance of a glistening slagheap with fountains on its crest, constantly changing their position. Slight subsidence took place towards the end of the month, but rising was once more in evidence at the beginning of February. On the 7th of this month, a heavy

overflow from the southeast destroyed the newly re-built foot-trail from the automobile road, while other overflows to the northeast in the following week compelled the hurried removal of the small instrument house, previously removed for safety from the northern rim of the pit. Increasing tumescence and the appearance of spectacular standing fountains betokened the approach of the equinox, and March opened with greatly increased overflows, particularly to the southward. At this time an extraordinary steeple-shaped cone developed at the north east rim, and remained a most conspicuous object for several months. Enormous quantities of lava poured forth from its base, and flowed east and north as well as south and southeast, completely altering the entire contour of those sections of the former pit.

As could be expected, subsidence followed the passing of the vernal equinox; the main and central lakes became merged, as did also the southwest and western ponds. Swelling of the lava dome re-commenced within a few days and continued until the end of the month, although the lakes remained low. A closing feature was the development of an explosive tunnel in the northeast heap, which gave many remarkable demonstrations of a great explosive eruption in miniature.

On April 2nd, rapid rising, with heavy gas pressure, commenced, and a second remarkable steeple cone formed alongside the first. Rising continued steadily until the third week of the month, when a tremendous spasm of upheaval of the whole mass took place. This was accompanied by extremely heavy overflows to the south, while the great southeast rim pressure ridge was now being pushed steadily outwards and strong tilting at the west and north stations rendered these useless as levelling points. Intense and renewed swelling to the north now began, and, on April 20th, a great flow which ran for many months with more or less intensity, emerged from the well-known Postal Rift, or as the region is generally styled, the Postcard Cracks, and spread north and west over the floor of the main crater from a source at a standing fountain. Ris-

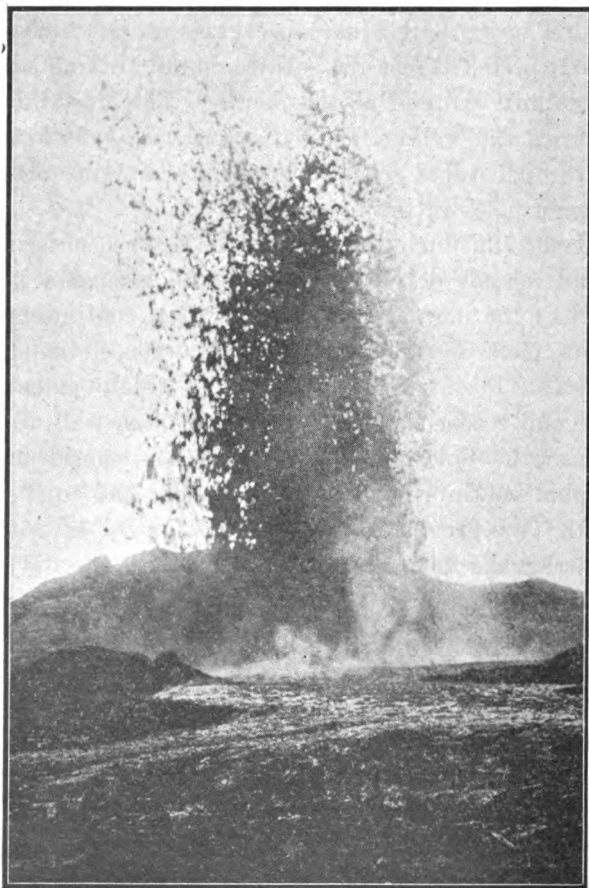
ing continued throughout the month, and on 29th there were tidal waves at Hilo and Punaluu, following a very distant under-ocean earthquake of the previous day.

May was distinguished by an exceptionally heavy outburst on the 6th, and by the steady enlargement of the area of the Postal Rift flow. High lakes prevailed until 13th, when, as might be expected before the solstice, slight sinking set in and continued until the end of the month. The Postal Rift flow had drowned the well-known Perret's Cone by 24th, and was flowing through tubes fed by streaming fountains plainly visible through holes in the floor.

On June 7th, during a continuance of the subsiding spell, a splendid cascade developed in the main lake, and proved to be a part of the normal circulation system, continuing to provide a spectacle of sublime magnificence for eleven days and nights. The Postal Rift flow became widely extended and enlarged, and reached the base of the northern wall of Kilauea Crater near the Volcano House Hotel. The subsidence of the lava column continued through the solstice and to the end of the month; the great northeast tower collapsed on 26th and a heavy earthquake took place in Hilo on the same day. These conditions were followed by somewhat stagnant phases during the first part of July; rising commenced on 13th and continued at a constantly accelerating rate, until the end of the month.

Throughout the whole of August, September and part of October the monumental rise of the Kilauea lava column continued, with frequent spectacular overflowings and still further spreading of the Postal Rift flow. The floor of the great main crater, during these months, as seen at night from the Volcano House Hotel, could only be likened to a view of a great and busy industrial city, with brilliant illuminations and many hundreds of blast-furnaces in operation. The lava lakes and their leaping fountains were at all times in full view of the Hotel and Observatory and presented a wonderful vision of the power of Nature.

On 29th September, following heavy earthquakes, and a preliminary outburst on 26th, the great volcano Mauna Loa broke into violent eruption from a source-point adjoining that of the outbreak of 1916, and discharged a mighty torrent of



molten lava down the mountainside into the sea on the Kona side of Hawaii. This developed into a most important flow, which ceased on November 12th after pooling widely upon the higher plateaux. The accompanying map shows the source of outbreak and course of the lava stream.

W A I I I S L A N D S

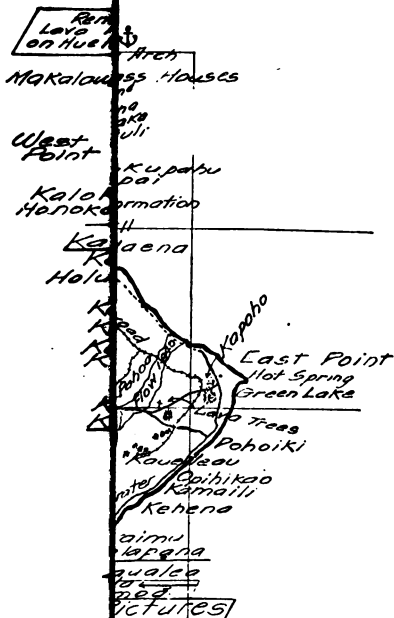
Lava Flow.

of Miles



60 ft. high, 1006 ft. long
and 2850 ft. long

ridge 750 ft. long.



During November the lava column at Kilauea commenced to recede slowly, in conformity with the usual pre-solstitial movement. The movement is very slow, however, amounting to only a few feet per week. Unless the termination of the Mauna Loa outflow produces sudden collapse in Halemaumau, as in June, 1916, the year may be expected to close with a cessation of the downward movement and a general upward tendency.

ADMIRAL JELlicOE'S ALOHA

IN appreciation of the courtesies extended him during his memorable Honolulu visit, Admiral Viscount Jellicoe, at departure, expressed the following sentiments:

"On leaving Honolulu I am very anxious to give expression to the gratitude felt by all on board the *New Zealand* for the wonderful kindness and hospitality shown to us during a visit which we shall never forget.

"It is hardly possible to express our thanks individually to all those who have given up so much of their time to entertain but we desire especially to acknowledge with deep gratitude the hospitality of the Chamber of Commerce and the social and civic clubs, nor do we forget that the Boy Scouts have done much towards our comfort during our stay. To all those, too, who have given private entertainments to officers and men, and those others who have worked so hard and so successfully to assist at such entertainments, we send our grateful thanks.

"It is with much regret that we leave the flowers and the music and the people of Hawaii, but we take with us such pleasant memories as will long keep green in our minds the vivid impressions left there by the charm of this faithful island, and by the kindness and true hospitality of the many friends we leave behind. We wish every happiness and prosperity to Honolulu.

Aloha,

"JELlicOE.

"H.M.S. *New Zealand*,
"Honolulu, 31 October, 1919."

PAST AND PRESENT AGRICULTURAL FAIRS

WITH all the pleasant things that have been said relative to the Territorial fairs that have been held the past two years—and more might be said as deserving—yet a feeling of something lacking; a stopping at the threshold of opportunity; an important omission, comes over one at times that induces the query as to whether the full educational value is obtained to the community which is the basic design of such exhibitions, annual or otherwise.

Comparisons are said to be odious, yet experience forces their lessons upon us, and woe betide those who fail to profit thereby. Admitting that times change, and that the present age demand that amusements be the attractive power to popularize agricultural fairs, the main object for them is to stimulate and encourage all branches of industry by a healthy rivalry through these competitive exhibits for prize mention, for self and community benefit by the lessons they may teach. At this point is where some advantageous features of the Royal Hawaiian Agricultural Society of 1850 might be utilized to material advantage to present and coming generations by having reports upon the various products, industries, etc., by experts or chairman of the committees thereon, to be presented at stated meetings therefor, and printed with the annual reports of the officers of the Fair Commission for record of progress and future reference and stimulation to endeavor, as the "Transactions" of the Society above named has proved. So far as the writer is aware, there are no reports resulting from either of our recent fairs, unless perhaps the chairman's report to the governor on the financial side of the undertaking. The feature of demonstration talks on food conservation by recognized authorities were of interest and value so far as they reached, and illustrates the educational opportunity not yet fully realized in our annual fairs by simply assembling competitive samples of the various products, industries, and impor-

tations of the territory and saying nothing about them, depending on the exhibits to speak for themselves.

No one at all familiar with early conditions at these islands, by experience or reading, but what will admit the great benefit that was derived through the agency of the Agricultural Society referred to, through its committee reports with the demonstration of exhibits, some of which benefits we participate in today.

By way of illustration, let us picture an early annual gathering of the Royal Hawaiian Agricultural Society. While the exhibits were being ensembled its business meetings took place, at the first of which, in accordance with its constitution, the president presented a brief report on the proceedings of the Society for its year, which summarized the activities of the various investigation committees appointed the previous year, and dealt with them as to their needs, objects and effect on the country, not only in agricultural lines, but on labor, commerce, finance, public improvements, etc. The treasurer reported on the receipts and expenditures, and the committee to take charge of the exhibition (usually of five), was made at this time. At the second annual fair, that of 1852, committees on capital and banking, on sugar and its manufacture, on poultry, and on horticulture reported at this first business meeting, as also the vice-president for Kauai upon the agricultural conditions of his island. Adjournment was then made till evening for the literary exercises which was a society event, and consisted of singing of odes by a select choir, and the annual address by Hon. E. H. Allen. The following day the Society met at 10 a. m. at which the reports of the committees on the following subjects were read, viz.: coffee, statistics, labor, neat cattle, horses, swine, honey bee, worms and other injurious vermin, fences, cereals, and carried a motion to petition the legislature for the protection of insectivorous birds. At the evening session the reports on injurious insects, garden seeds and fruits, manufactures, salt, vine and fig, were presented. On the third day the reports on roads, sugar and its manufacture, and on

premiums occupied the session, also, the election of officers and appointment of committees for the ensuing year took place which embraced thirty-four subjects. The presentation of these various reports naturally elicited inquiry and induced discussion and beneficial illumination of the deeper subjects.

Through these papers and discussions may be traced the introduction of labor for the development of the sugar industry, then in its infancy, and steam for its manufacturing motive power as also city business purposes, flour milling, rice culture, introduction of the honey bee, the improvement of stock of all kinds among other things that might be mentioned, besides the stimulating benefit to the spirit of enterprise and endeavor by this broader-vision interchange of views from ideas of personal interests to community benefits. The reminiscence paper in last issue on "Our Foundation Layers," touched on the beneficial influence of this Society upon the life of the land for its brief life of ten years.

While we have outgrown many of the subjects that worried the foundation layers of Hawaii's agricultural prosperity which called for investigation and report in the early 'fifties, other subjects fully as vital to present vested interests take their place with our rapid expansions. It is clearly the path of wisdom to benefit by experience, and experience has amply demonstrated the value of investigation, report and discussion on given subjects, as instanced by the renowned position of the Planters' Association and its experiment station. This lack in our Fair Commission procedures may be caused by its difference of an annually appointed body as against a Society's elected officers in which all the members more or less unite, and in and by their mutual coöperation seek the full educational benefits to be derived. The Commissioners doubtless feel alone, having no supporting membership to share in their task, yet with due forethought and change of method in planning future exhibitions and selection of committees, time might be allowed them to gather data for reports upon their respective subjects, that we may be advised upon the dangers, difficulties

or triumphs in the various branches of endeavor, the progress of infant industries, and outlook or possibilities of new ones; something that could be looked back to twenty, fifty, or more years hence, for the status of our enterprises as years go by, beside the press reports of day's doings commendable though they be, and learn our struggle in getting tobacco growing, cement manufacturing, paper making, and commercial products from waste molasses on their feet. Reports on all such are not only of community value to us now, but of interest to others in years to come.

NEW HAWAIIANA

THE issuance of Fornander's Hawaiian Folk-Lore of the Bishop Museum Memoirs, has made perceptible progress this year, parts II and III of its second volume, with its index, and parts I and II of its third and closing volume, having been published during this period. Its completing part is finished and ready for the press, to issue next spring. A review notice of this monumental work will be found on page 99.

"The Napoleon of the Pacific," by Herbert H. Gowan, D.D., F.R.G.S., appears on the centenary of the death of Hawaii's first consolidating King, Kamehameha the Great, a 12mo. volume of 376 pages, published by the Fleming H. Revell Co. The author has done well with the material available to him far from the scene of his hero's activities, made familiar to him from several years' residence here a number of years ago. Its reading revives the hope of yet more material being unearthed to supply not a few missing links in the accounts we have, upon which Dr. Gowan has largely drawn.

"David Douglas, Botanist at Hawaii," is a compilation by Mr. W. F. Wilson, of material relating to the life and work

of this intrepid Scotch botanical explorer and mountain climber, who lost his life in a cattle pit on Hawaii in 1834, a victim to science; an 8vo. ill. pamphlet of 83 pages.

"Sorcery," by Francis Chas. MacDonald, published by the Century Co., a 12mo. of 215 pages, purports to illustrate the insidious workings of kahunas on the superstitions of the Hawaiian race in the death of Kaiulani, a far-fetched story told with too minute familiarity with place and social life—which it libels—possible to a stranger of a week's sojourn.

"On the Makaloa Mat," is the title of a new collection of short stories of Hawaii by Jack London, mentioned in recent book lists without further particulars.

A HAWAIIAN'S VERSION OF CAPTAIN COOK'S DEATH.

BY JOHN C. SEARLE, SR.

IN the year 1874 a Hawaiian named Puua¹, a venerable and renowned herb doctor living at Waimea, Hawaii, related to me the following story of Captain Cook's death, as told him (Puua) during the lifetime of Kamehameha I.

When Captain Cook's ships were sighted the natives thought them to be floating islands, and so named them "moku" (cut off, apart), but the kahunas (priests) told them it was the return of their god Lono as promised in their chants. The people readily believed this on account of the many strange things they saw the new-comers doing, such as smoking, striking lights at their pleasure with something (flint and steel) which they took from their person. They called them "Haole ili alualu" (foreigners of wrinkled or loose skin), as they were

¹ This native herb doctor made some remarkable cures, so that a Dr. Shipley offered him \$100. to show him how, and what herbs he used, in curing a broken leg.

under the impression that the things they took out of their pockets were taken from their skin or body.

After Captain Cook (Lono), his officers and men had been ashore awhile, curiosity in, and reverence toward them, waned, for a number of the men got too familiar with the natives; disregarded the established kapus (restrictions), and did other things that were not in accordance with the people's rules of living. Some commenced to doubt the reality or truth of Captain Cook being a god, or his men being the followers of Lono, and at one of the councils held, a chief who had a complaint against the strangers for something that had been done to him or his family, maintained openly in the assembly that he did not believe Captain Cook was Lono, and said: "Let me challenge his power as Lono by making threats before him with a club, and if he is a real god, or Lono, I will be killed, but if he is false and is scared and tries to get away from me he will then have proved himself a fraud and I will be allowed to strike him," and it was passed at the council that the man should have his way.

On the following morning, when Captain Cook came ashore at the landing on the Kaawaloa side of Kealakekua bay (on the mauka side of where the wharf was, not where the monument is, but at the end of the Kaawaloa road), and went a few feet from the landing, this man made his way toward him, brandishing a war club in such a way as to make Cook think he was going to be attacked, whereupon he turned and made as if to go back to the boat, whereupon the chief struck him on the back of the head and he fell face down in a pool of water near the landing. The sailors and marines commenced to fire their guns, and the natives to use their maa (slings), and getting mats to hold up in front to stop the bullets.

Captain Cook's body was taken up on the hill just above the pali, and a pile of rocks are there to this day where his body was divided amongst the chiefs, not to eat, but to preserve the bones, as Hawaiians held the superstition that a chief's bones

made the best fish hooks, and that any part of a chief's body dried and prepared by the priest could, by continuous prayers, be made to possess mana (power) to bring the spirit of the deceased to perform the command of the person or kahuna who had sought its services.

In preparing parts of the body, say the hand for instance, it would be smoked over the fire to sever the flesh readily and preserve the bones. That was the reason some parts of Cook's body were found to have been put in the fire, and not on account of the natives eating any of his flesh. The small intestines were put in a container and offered before the Hawaiian gods, and one of the party in charge mistaking them for those of a pig, some were eaten, but all natives deny emphatically that Captain Cook's body was eaten.

I have spoken with a part-Hawaiian, now living, who admitted to me that the ancestor of his family was said to have been the one who took and ate the small intestines of Cook by mistake.

Natives take the small intestines of the pig and clean and pickle them, to be eaten raw as a relish with sauce from their ipukai, a small bowl of wood or coconut holding odds and ends of plants and other things in liquid.

JAPANESE LANGUAGE SCHOOLS. A recent report by the Superintendent of Public Instruction, on the Japanese schools of the territory, shows one hundred and sixty-one throughout the islands, with 406 teachers and 20,514 pupils. Of this number six are listed as of high school grade, three each in Honolulu and in Hilo, of which five report 42 teachers and 1640 pupils. All others are classed as primary and grammar grades and kindergarten, and divided by islands are as follows: Oahu, 38 schools with 7,467 pupils (of which Honolulu shows 13 schools and 3,806 pupils); Hawaii, 59 schools with 5,720 pupils; Maui, 28 schools with 2,844 pupils; Kauai, 29 schools with 2,793 pupils, and Molokai, one school with 50 pupils.

RETROSPECT FOR 1919

SUMMARIZED CONDITIONS.

ANOTHER year of exceptional activity is to be credited Hawaii, and not a little thereof amid serious adversities. As in other parts of the world, the after-the-war adjustments are not light and easy tasks for fulfilment, either in internal workings, or in relations abroad. This has been due largely to the long delay in the release of steamships for passenger traffic for both resident and tourists' needs, never more seriously felt than this year. While the shipping board have furnished freighters for outward cargoes fairly well, so that less strain on warehouse capacity is reported than was felt last year, yet much difficulty is experienced through delays from various causes in the delivery of orders. This, with the interference of strikes abroad, has had its effect on all lines of trade and materially interfered with improvements in progress and projected.

Owing to these conditions our imports for the year are practically the same as in 1918, a little short of \$52,000,000, a sum reached by higher prices, for many lines show less in quantity. Exports for 1919 totals \$98,859,311, the largest amount yet reached, a gain over the preceding year of \$18,313,705. This healthy condition of our trade places \$46,964,198 to our credit for the year, the excess of exports over imports.

Fortunately a favorable year's weather has aided all crops, and the gradual demobilization of Hawaii's enlisted men afforded many to resume their former labors and thus relieve the labor situation.

POLITICAL

Activities in the line of politics, through the question of woman's suffrage, led to unusual interest in public affairs, as to whether a pledge to support or maintain party platform

planks was to be considered a mere "scrap of paper," or to be abided by with honor. A majority of representatives not only ignored their pledge to support the movement, but understandingly ignored all petitions in its favor, and voted against the measure. And the Hawaiian members were not the worst sinners.

Following this excitement came the Municipal election, at which party lines were set aside by many for the common good, resulting in the re-election of Mayor Fern, and a divided body of supervisors which include two members of the house of representatives, contrary it was thought, to law, but on a technicality are able to hold their seats. In the change that naturally followed not a little feeling was aroused and threats of impeachment made.

LEGISLATIVE

The fact that the recent legislative session was predominately Republican, did not inure to their glory and honor. The action of the house on woman's suffrage, against its passage in the senate, is already shown. The question of reapportionment, as set forth in the Organic Act, was again voted down by all Maui, Kauai and Hawaii members, except Speaker Holstein, with Kupihea of Oahu added. The abatement law came up again and met with defeat. The Sunday amusement bill carried through the house and was in prospect of blackening also the records in the senate until Desha of Hilo assailed it in support of his minority report thereon. Its action on the language schools question is felt to have been a mistake.

The house was liberal; to its credit, it is claimed, adequate pay was provided for teachers and provision for schools. Homesteaders appeared to have their special solicitude; salaries were boosted indiscriminately, and pay of committee clerks and attendants upon the august body far beyond business standards. The expense of the session was \$86,035.78, which, for the 242 bills passed of the 616 introduced, brings the cost at

\$355.52 each. So generous were they, financially, that Chairman Lewis of that committee called a needed halt, whereby the intended claim on the loan fund was reduced nearly a million dollars.

Speaker Holstein's expressed opinion at the close of this eleventh session, while inelegant, nevertheless voiced public estimation. Thanks to the hard work of a few solons some constructive measures carried, and to those vigilants are we indebted for preservation from the freak bills inevitable with hasty legislation.

WEATHER

An unusual N.E. gale of 52 mile velocity struck Honolulu on the afternoon of December 3d, 1918, which lasted nearly three days, during which much damage was done houses, fences and trees throughout the city, more particularly in the Punahou section; uprooted and broken trees adding telephone and electric poles in the wreckage, seriously interrupting street car and electric light and phone service. A number of persons were injured in the storm, and one life was lost in a Manoa freshet. Fruit crops suffered severely. Damages in and around the city was estimated at \$500,000. Maui and Hawaii also suffered somewhat in certain districts.

The winter rains throughout the islands fell below normal, nor have the summer showers been of such frequency or copiousness as to make up deficits. Some apprehension from continued dry weather prevailed in parts of Hawaii and Maui, though a heavy rain in August relieved the situation on the latter island temporarily.

Trade winds have prevailed with more regularity than usual during the year, affording a more equable temperature, though occasionally taking a leap beyond normal, as on August 9th, when a new record of 88.2 was registered as Honolulu's hottest day. September, usually sultry, entered boisterously this year, materially modifying the temperature.

CARNIVAL SEASON

Honolulu's Carnival season for 1919 took a departure from the ordinary, largely owing to the feeling of isolation that prevailed by the almost utter absence of tourists through the lack of steamer passenger accommodation. Under this changed condition the Shriners stepped in and held a Happyland Carnival season from February 20th to 22d at the armory, with Miller street and adjacent grounds supplementary, for its society circus and other varied attractions and entertainments, closing Saturday night with a costume ball.

Washington's birthday itself was observed by a gathering of children, with banners, at the Executive grounds, forming a colorful pageant representing all states of the Union, which marched around by Hotel street to the Army and Navy Y., where literary exercises were held, Judges Dole and Vaughan giving the addresses.

KAMEHAMEHA DAY

Special preparation was made for the observance this year of this day of days (June 11th) to the native people, as it commemorated the one hundredth anniversary of the conqueror's death. The various Hawaiian Societies attended memorial services at Kawaiahao, as is the annual custom, the Sunday preceding June 11th, the address on this occasion being by Rev. Akaiko Akana.

An account of this centenary memorial of the eventful day, with its procession, floats typical of historic events in the life of Kamehameha, and literary exercises of the occasion at the Executive grounds, which followed, is the subject of a special paper in this issue.

TERRITORIAL FAIR

Fair week, which included Kamehameha day, as before, was a most important event, the exhibition and attendant attractions being much larger than the one of 1918, and was held again at Kapiolani Park. Everything was ready and

in order for the opening day, Monday, June 9th, and carried through the week to include the Sunday following. The attendance throughout was large, for the accommodation of which the Rapid Transit line altered its service and served the public well. Notwithstanding the Fair's success in various ways, it fell short financially of meeting the expenditures of the undertaking. Much of this outlay, however, will serve subsequent exhibitions.

A succinct descriptive account of this second territorial exhibit appears elsewhere in this issue.

FINANCIAL CAMPAIGNS

A campaign was entered upon in latter part of March to secure the sum of \$275,000 as the amount required for this year's needs by the seventeen charitable institutions of the city, entitled the United Welfare Campaign, in place of their individual appeals through the year. The drive began on the 24th, lasting a little over a week, but fell somewhat short of the amount desired. A like effort is in progress for the needs of the coming year, \$292,000 being required for these worthy institutions.

The victory loan campaign (the fifth) was entered upon April 21st to meet Hawaii's quota of \$4,788,000, and after a vigorous effort throughout the islands, closed May 10th with \$217,650 above the sum named, having succeeded in raising \$5,005,650 from 9870 subscribers. In a summary of Hawaii's share in the various war loans, Red Cross, United War Work, etc., covering war objects, showed it had reached the sum of \$34,000,000.

The Harry Lauder fund for Scottish soldiers' relief gained over \$6,000 by the visit and afternoon concert of that noted singer in April, en route to the Colonies.

The W.S.S. drive is still maintained, resulting this year, up to August 30th, in sales to the amount of \$235,291.50, and while not up to our quota, yet Hawaii leads all other state and territory divisions of the 12th district, of which it is a part.

In the country-wide campaign for the Roosevelt Memorial, in October, Hawaii again exceeded the quota set for her, the various islands contributing the sum of \$25,723.96 to the fund.

HEALTH MATTERS

In common with the influenza epidemic that prevailed in many parts of the world through last winter and spring months, Hawaii had its share of "flu" victims. Public gatherings, at least indoors, including church services, were prohibited, though schools remained open but under watchful care. The total cases reported throughout the islands were 12,499, of which 642 were fatal.

In other respects health conditions, except tubercular, have presented no serious aspects, though the recent appearance of a number of cases of typhoid, on Oahu, has called for special vigilance. On the whole, health matters in Honolulu are much improved, due undoubtedly to the better sanitary conditions since abolishing the tenements and the liquor saloon.

NOTED VISITORS

Many notables from various lands have passed through our gates during the year, a forerunner of Pan-Pacific activities. The islands have also been honored by committees of investigation, of wide and varied character, an evidence of the world's eyes being upon us.

In a military and commercial sense the official visit of Secretary Daniels and party, for the dedication and opening of the great naval drydock at Pearl Harbor, was the event of the year, which, with the brief call at Hilo, presages much for the territory. Another official party was Director S. T. Mather and Chief Engineer Ponchard, for a visit to and report on the Kilauea National Park.

The Y. M. C. A. fiftieth anniversary occasioned us a visit from Paul Super, the originator of Honolulu whirlwind campaigns; and the coming missionary centenary brought Dr. Geo. L. Cady, of New York, and Dr. Geo. W. Hinman, of San

Francisco, to study this field of missionary labor, spending several weeks in their tour of investigation throughout the islands. Dr. C. H. Patton and party of the A. B. C. F. M., returning from the Orient, spent a day of mutual delight with representatives of the Hawaiian Board, during their steamer's stay.

Not least was the visit of Admiral Lord Jellicoe, the distinguished commander of the British North Sea fleet in the late war, who arrived on H.M.S. *New Zealand*, of enviable naval record. Viscountess Jellicoe accompanied the Admiral in this visit, and Honolulu was delighted to honor her distinguished guests with entertainments, official and private, during their eight days' stay. In return, beside throwing the ship open to the public, an "at home" was held on board just before leaving for Hilo for a pop visit on Madam Pele.

CITY REAL ESTATE

Many changes are taking place in land ownership, indicative of boom conditions by the readiness with which sales are effected on subdivided tracts placed upon the market. As for some time past, Waikiki is attracting a community of owners that have absorbed the Royal Grove, Uluniu, Pualeilani, and Kaiulani tracts, and are erecting homes of the bungalow type, mostly. Several transfers are reported in the Dowsett tract, upper Nuuanu, as also in the Spreckels tract, Punahou, and quite a number of Makiki and Manoa properties have changed hands. In this latter attractive residential section, a new side-hill tract, the Ualakaa, has been subdivided and put on the market, with completed street work.

Among the important transfers of the year appear the following:

The Nuuanu residence of Geo. Rodiek to Mrs. A. S. Wilcox, for \$67,500; Ballou home, "Overseas", to Eric Knudsen, \$24,000; Geo. F. Davies home and extensive grounds, Thurston street, to Jas. D. Dole, \$55,000; Paul Isenberg property, Pensacola street, to Frank Thompson, \$20,000; Waikiki Inn

property to the Elks Lodge for \$30,000 for the erection of their new home; Mrs. S. Cutter's Waikiki property to H. Winsley, \$16,500; Wilder Estate beach property, Waikiki, to Jas. Wilder, \$30,000; Kaimuki property of Mrs. M. D. Prime to T. Oshima, \$10,000; Ballentyne property, Thurston street, \$17,500; Dodson Waikiki property, beyond car line, \$27,500; Emma street property for enlargement of Royal school grounds, \$11,428; Macdonald hotel, Punahou street, \$29,500. Auctioned parcels of E. S. Cunha estate in various parts of the city realized \$15,425; Kakaako property, a little over an acre, at \$25,000 to the Atherton estate. Oahu beach sites, at various localities, are eagerly sought and command high figures.

Portion of Ala Moana Bishop Estate tract has been secured by the government at \$125,000 for the Kewalo basin improvement; the Irwin Waikiki property, Kapiolani park, has been purchased for a War Memorial park, at \$200,000. In business property is the sale of the Schaefer building, opposite the Post Office, to the Dillingham interests at \$35,000, and three important sales of corner lots on Beretania street at good figures, to serve the widening Automobile business demands.

BUILDING NOTES

Considerable building activity has prevailed throughout the year, more particularly in the suburban sections, in spite of advancing cost of material and labor in the demand for shorter hours of work. And this activity is said to be but the forerunner of building extensions and improvements exceeding any previous period of Honolulu's history. Like activity is in progress at Hilo, with its new St. Joseph's church, and homes in the Waiakea homestead addition. Kahului has also erected a number of important buildings, and at Lahaina a fine concrete block for the Lahaina bank and store take the place of the burnt out section.

The Oahu Sugar Co. have recently completed an up-to-date hospital, the finest plantation equipment in the islands, costing some \$75,000.

Among the many new structures under way in this city are the following:

Hawaiian Fertilizer Co. made repairs of storm damage and extensive enlargement of their warehouse, etc., at estimated cost of \$30,000. A two-story concrete building of the Sperry Flour Co. is the new business structure in the water-front section. The completion of the new power house of the Hawaiian Electric Co. on the Esplanade, mentioned in last issue, is still hampered by labor and freight conditions abroad in the non-receipt of long ordered material. The corner stone of the Mutual Telephone Co.'s new extension, on Alakea street, joining their building on Adams Lane, was laid with interesting historic ceremonies July 19th. The first home of this Company, corner of Merchant and Alakea, was recently torn down to make way for the extensive building project of T. H. Davies & Co., to cost \$1,250,000, a four-story concrete structure, to occupy the whole block, and now well under way. Adjoining the Catholic cathedral, Fort street, the new home of the Knights of Columbus is arising, and on Garden Lane, in the adjoining premises at the rear, the rebuilt enlarged home of the convent is nearing completion.

The Adventists have built a neat commodious chapel on Keeaumoku street, costing \$5,000. J. A. Scott, of Hilo, is erecting a fine residence on same street. Other pretentious homes are cropping up in various directions. A noted feature of the year are the double-apartment houses, of which several are building in Manoa, and many more at Waikiki, besides a number of smaller cottages. The Spreckels tract is sharing in the home building movement.

Permits issued for the year up to the close of October, for buildings, extensions and repairs, show an estimated expenditure of \$3,966,812.

PUBLIC IMPROVEMENTS

Under this head there is little to report in government work beyond the up-keep of things existing, and preparations for the

new projects by recent authorization upon placement of the new loan, on which Treasurer Metzger is now returning from his successful mission in the east, the most important of which is the long projected reclamation of the Waikiki swamp lands. Much preliminary work has been carried through, and condemnation proceedings instituted for lands affected. With 340 separate pieces of property lying within the area, of which 231 are affected by this development the preparation work has been no light task.

Kewalo Basin is another reclamation project, but which has the aim also of harbor extension in that it will be made to serve the fishing and other small craft, to the relief of Honolulu harbor proper. For this purpose an appropriation of \$130,000 was made, and in furtherance of its improvement plan, a portion of Bishop Estate property along Ala Moana has been secured by the government at a cost of \$125,000.

Kahului's west breakwater is finishing and proving of great benefit to the port. Hilo is waiting orders to enter upon the completing unit of her sheltering ocean-wall, which is showing its beneficial effect on wharf conditions. Hana's new concrete wharf, referred to in last issue, for which an appropriation of \$75,000 was made, received \$20,000 additional from the recent legislature. Much delay has been experienced in the work, its last ailment being an attack of strike fever, so prevalent abroad. Improvement by blasting and dredging of Lahaina boat channel has been carried out at an expenditure of \$10,000, but further extension of this work is seen advisable.

Completion of Olinda reservoir is just effected at a cost of \$59,500, Keamoku Road, Hilo, that was carried through the past fiscal year to the amount of \$43,222, received an additional \$75,000 at the last legislature for extension.

In this city, the completion of the Kalihi pumping station's added facilities adds five million gallons per day to the water supply, at an outlay of \$15,425. Improvement to the Judiciary grounds have been carried through; the band stand in

the Executive grounds is rebuilt in concrete, and the bungalow eye-sore removed.

HARBOR EXTENSION

Following the Greater Honolulu and Free port agitation of last year, no little interest has been manifest therein to meet the destined growing Pacific commerce. Public attention was attracted to a new harbor plan prepared by W. A. Wall, C.E., early in the year, which received favorable comment in business circles and recommended by the Pan-Pacific organization and referred to the department engineer for consideration in connection with the re-survey of the harbor. This plan provides twenty piers out of our present system, and ten much larger piers in fan shape on the west side of the harbor, giving together sufficient wharfage for fifty-two vessels. The project, however, is turned down—at least for the present.

The Free port question was acted on favorably by the recent legislature for submission to Washington, that Hawaii might share in the free zone measure of the Sheppard-Sanders Bill now before congress.

VICTORY DAY

This new holiday added to Hawaii's calendar was observed by a monster forenoon parade of military, red cross, scouts, fraternal and other civic bodies, schools, etc., ending at the Executive grounds with addresses, music and demobilization of service flags. At 11 a. m. the dedicatory exercises opened, of turning over the Irwin property at Kapiolani Park, Waikiki, to the American Legion as a Memorial Park to Hawaii's fallen heroes in the late world war. Governor C. J. McCarthy made the address of presentation and dedication to this purpose, and A. L. C. Atkinson the address of acceptance on behalf of the Legion. The service closed with an interesting pageant illustrating Hawaii's summons and response to the call.

FIRES

A disastrous fire broke out in Lahaina on night of January 4th which wiped out two blocks of its business section,

including the bank. Loss was placed at \$60,000 on which insurance to the amount of \$33,000 was paid.

Demands upon Honolulu's fire department have been more frequent this year than for some time yast, there being 105 calls up to the middle of November. Fortunately its ready response and efficiency checked the majority of cases in their incipency. The following were among the more serious occurrences:

New Year's opened with the loss of Mrs. H. M. Crockett's dwelling at Kalihi, representing \$3,000. Sometime later four small cottages and a Boys' Club, in same section of town, went up in smoke; loss \$4,400. In March, the Japanese rice mill, on Queen street, with a goodly stored supply of rice, was destroyed by fire, loss placed at \$30,000. The oil cargo of bark *Harvard*, awaiting shipment on Sand Island, was destroyed by fire in two installments in same month. In April, a fire at Schofield Barracks did damage to various structures at an estimated loss of \$7,000.

An early morning fire, in July, destroyed a Japanese dwelling, off Sheridan street, and badly damaged another. Two lives were the toll of this blaze. Several buildings of a Japanese school at Waialua were destroyed by fire July 16th; loss estimated at \$8,000.

A midnight fire, August 10th, entirely destroyed the unoccupied residence of Capt. J. Hodson, at Kapahulu, with its furnishings; valued at \$3,000. September 8th, the residence of Mrs. C. Lloyd, King street, was destroyed, but few articles of furniture being saved; loss \$7,500 on which was an insurance of \$6,000. Another midnight fire, November 15th, following an explosion, destroyed the partly furnished dwelling of Mrs. A. Rock, Young street near Piikoi. Supposed to be an act of incendiarism. Loss placed at \$4,000.

SHIPPING MISHAPS

Among the more serious mishaps during the year appear the following:

S.S. *Benito Juarez*, from San Francisco, foundered in the gale of December 3, 1918, at 2 p. m., 40 miles N. E. of Molokai channel, whereby an engineer and six of her crew were lost. Other officers and seamen, and seven Chinese landed destitute on Lanai on the night of 4th.

U. S. collier *Saturn*, leaving Pearl Harbor December 3rd for Vladivostok, returned to Honolulu late the following day badly battered by the gale and with much water in the hold.

Stmr. *Claudine* grounded on a coral reef off Maui, December 27th, but with aid of three stmr. to her own power, she slid off to deep water without apparent damage after but a day's detention.

S.S. *Cethana*, Capt. H. Dinney, grounded on Sand Island near the light house January 27th through mishap to machinery in entering the port, but was hauled off at high tide the following day.

Stmr. *Wailele* and schmr. *Kitsap* collided in the Kauai channel on night of March 21st and were abandoned in a sinking condition two hours later, the stmr.'s crew landing on Kauai, and those of the schmr. at Barber's Point, on Oahu.

Schmr. *Oleson*, D. McDonald, master, from Tahiti for San Francisco, with a cargo of copra and oil, struck on Niihau Island and reef on night of April 20th and quickly went to pieces. No lives were lost and but little of her oil cargo was saved.

INTER-ISLAND AERO FLIGHTS

Two seaplanes left Luke Field, Pearl Harbor, July 3rd at 9:10 a. m. for Hilo with a bag of mail, and reached the crescent city shortly after 1 p. m. without mishap. The return trip was made on the 7th, the flight of 190 miles being accomplished successfully in two hours, fifty-five minutes. These army seaplanes were commanded by Lt. Col. B. H. Atkinson and Major J. B. Brooks, and they were accompanied in the flights by Capts. Geo. C. Burrow and Wm. F. Lewis, and Lts. Donald Duke and Ralph Gray.

In the aerial participation in events at the Maui Fair, Kahului, Oct. 9th, Lt. J. Lanfall fell 100 feet with his Curtiss plane into a lumber pile. Fortunately the aviator escaped serious injury, though the machine was demolished.

ENTERTAINMENTS

The community has been favored through the effort put forth by a coterie of music lovers that provided Honolulu with a season of Philharmonic concerts last fall, by artists in the front rank, given at Mission Memorial Hall, which received such encouragement that another season of like concerts is again in progress.

Miss Peggy Center during her stay in the summer, en route to London, gave pleasing evidence of her professional progress, in three concerts, assisted by local talent.

The Cherniavsky Russian trio, passing this way again, gave a couple of their delightful instrumental concerts. Miss Tori Sommers, soprano, of London, also appeared twice in concert during a brief stay. Local artists, including several recent additions, have provided a number of vocal and instrumental concerts from time to time, indicating a commendable ambition in home effort.

Punahou in its new departure of Music is sharing with the community the talent of its artistic music faculty, by a series of vocal and instrumental concerts at Mission Memorial Hall this fall.

The drama, too, is taking encouraging shape under the leadership of Mrs. Roger Noble Burnham, who, with her Lanai Players (amateurs), have presented a number of delightful entertainments from time to time, as have also the Footlights company of amateurs, to appreciative audiences.

Daniel Frawley Company put in a summer season, en route to the Orient, and at this writing comes the Denniston Players for a fall season, at the Bijou.

BANK CHANGES

With the opening of the year, the pioneer banking house of Bishop & Co. which dates back to August, 1858, changed to a corporation as The Bank of Bishop & Co., Ltd.

The Bank of Honolulu, by sale of the Irwin estate interest therein to local parties befits its name, the new owners being: J. M. Dowsett, Jno. Waterhouse, E. H. Wodehouse, H. Holmes and A. N. Campbell.

In October, the Sumitomo Bank, a private Japanese concern, moved from Fort and Queen streets to specially prepared quarters, corner of Smith and King, and incorporated as The Sumitomo Bank of Hawaii, Ltd.

PINEAPPLE INTERESTS

The merging of Pineapple Companies mentioned last year has been effected, and the Thomas Pineapple Co. and Maui Pineapple Co. are no more. The Hawaii Preserving Co. and Hawaiian Islands Packing Co. also lose their identity under the new name of California Packing Corporation. The Honolulu Ranch product changes in name to Baldwin Packers. A new cannery, with California capital, is in progress at Haiku.

A new section to be devoted to pineapple culture is mooted for Kohala, Hawaii, and Hamakua is said to be contemplating a like step.

An experiment station in pineapple interests on the line of the Sugar Planters' Association has been established at Kapalama-uka, Honolulu, comprising some sixty-five acres.

The estimated pack for this year, 1919, is placed at 5,000,000 cases.

HAWAII'S WAR MEMORIAL

In keeping with the spirit abroad in the lands that participated in the world war to honor the memory of their heroes whose lives had been sacrificed in the conflict, Hawaii took up the refrain for a memorial to her sons who "failed to return from Flanders Field." Various plans were suggested as to the

best form this should take, and while views differed as to whether monument, arch, or other form should typify our appreciation of their sacrifice, and the most appropriate location for the object in view, consensus of opinion readily accepted the suggestion of Mr. John Guild to purchase the Irwin property at Kapiolani Park, Waikiki, to be set aside as a suitable Memorial Park, where at some day some further memorial form, be it monument or triumphant arch, could be erected whereon the names of Hawaii's fallen heroes might be inscribed. The plan meeting general favor an appropriation of \$200,000 was made by the legislature then in session, the purchase made, and the property has been placed in the custody of the American Legion for the purpose designed.

MAUI'S SECOND COUNTY FAIR

Maui combined her County fair with her deferred Civic convention this year, with the result that the excellence of the exhibits and excitement of the sports feature held more attractive power than the discussions of Civic questions.

Though special and permanent buildings were erected on newly reclaimed land for this fair and the track of the Racing Association, everything was in readiness for its opening day, Oct. 9th, and lasted three days. The attendance was gratifyingly large, and the exhibits, largely agricultural and stock, demonstrated both in variety and quality the local possibilities in home grown products, in which the island's motto, "Maui no ka oi," was fully verified.

MAUNA LOA ERUPTION

Following a long period of unusual activity at Kilauea, Mauna Loa burst forth in an eruption Sept. 29th on the Kau slope of the mountain at 10,000 feet elevation in the vicinity of Puuokeokeo, above the last flow of 1916. The eruption was preceded by a glow from a rift on the southern edge of Mauna Loa, on the 26th as did the last. So violent was the outbreak and limpid the flow that it rapidly coursed down the mountain

side, burning the forest belt in its path, crossing the government road in South Kona and entered the sea at Alika in a cascade. Much property has been destroyed by the flow but no lives lost.

Visitors to the source of the eruption reported it as a heavy column shooting up into the air 200 feet from a molten lake some two miles in length, and flowed forth in streams alternately of aa and pahoehoe lava at white heat. Many visited the scene, being accessible by auto. This outbreak was accompanied by a tidal wave on the Kona coast on Oct. 2d whereby one family swept to sea narrowly escaped drowning. Another notable feature has been the prevalence and density of volcanic haze of much longer duration than heretofore, and of far reaching effect, it being observed by vessels 800 miles distant from the islands. The eruption ceased on Victory day, Nov. 11th.

MORMON TEMPLE DEDICATION

The Mormon temple at Laie, Oahu, which has been long under construction, costing some \$200,000, and said to resemble in plan and design the famous Salt Lake edifice, was dedicated Nov. 27-30th, for which purpose President Heber J. Grant and delegation of dignitaries of the Church of Jesus Christ of Latter Day Saints arrived here to participate in the exercises of so important and memorable an event.

LOWREY MEMORIAL

A beautiful tribute to the memory of Mrs. F. J. Lowrey, for her untiring service as president of the Outdoor Circle, has been erected in the form of a Memorial Fountain of pink Tennessee marble in its architectural design, in the plinth of which is set a bronze medallion group symbolic of the spirit of the Circle. Mr. Roger Burnham was the designer and sculptor of the chaste memorial, which was unveiled with appropriate ceremonies on the afternoon of June 17th on the Mission Memorial grounds. The carved inscription, as follows, tells its enduring story:

“Erected by the Outdoor Circle and Friends as a Tribute of
Love and Admiration for

CHERILLA A. LOWREY,

Under the Inspiration of Whose Radiant Leadership Honolulu
is being made more Beautiful.”

NECROLOGY

Among the early and well known residents called to their reward since the close of last record, including kamaainas dying abroad, are the following: C. C. Kennedy, Hilo (70), J. E. Barnard, Cal. (62), Mrs. B. Cartwright, Jr., Cal., Mrs. C. Torbert (78), L. H. Hart, Kauai (83), J. W. Robertson (66), Mrs. J. Afong (79), Mrs. W. A. Bryan (44), Saml. Widdifield, Cal. (46), W. A. Bowen (65), L. H. Mesick (62), T. J. King (77), Geo. D. Freeth, Cal. (35), Jas. E. Jaeger (41), Wm. Wolters (63), Mrs. David Rice, Boston, Mrs. A. Sinclair (77), F. M. Bechtel (55), Dr. F. M. Wetmore, Hilo (60), Cpl. E. Hedeman, Iowa (31), D. P. R. Isenberg (52), C. Bolte (65), J. M. Riggs (64), Mrs. Mary Lyle, Cal. (82), Geo. H. Robertson (64), Jno. F. Soper (47), Z. K. Myers (60), G. W. R. King (66), A. S. Wilcox, Lihue (75), F. E. Atwater, Haiku (68), E. J. Walker, Maui (53), D. L. Withington (65), Mrs. W. A. McKay, Maui (53), N. E. Gedge (55), W. Lanz (68), Mrs. S. H. Robertson (95), J. J. Belser, Cal. (43), Mrs. H. E. Dowsett, Cal. (53), H. H. Renton, Kohala (59), Mrs. M. A. Lemon (75), Prof. C. H. Hitchcock (82), Mrs. V. H. Curtis (76), L. M. Baldwin, Maui (60).

KAIMUKI HIBISCUS CLUB

An organization of above title was effected last February, with Mr. Ed. Towse as president and Mrs. E. P. Irwin secretary. The object is to eventually have a growing collection of 1000 varieties of hibiscus, the favorite flower of the islands, in the new park at Kaimuki. The movement has been encouraged

by City and County officials and fanciers, about 175 varieties being now set out. The exhibit promises to grow rapidly.

MISCELLANEA

An innovation this year, born of necessity, was the Volcano Summer Camp to serve vacation benefit of change to teachers and others unable to go abroad owing to the lack of steamer accommodation. It proved a very successful and inexpensive summer outing to over a hundred participants.

The Japanese Fountain erected in Kapiolani Park to commemorate Emperor Yoshihito's coronation, was the gift of Japanese residents here and presented to the city in their behalf by Consul-General R. Moroi at its dedication March 16th. It was officially accepted by Mayor J. J. Fern.

The parent algaroba tree of the islands, planted by Father Batchelot in 1828, on the Catholic premises, Fort street, has had to give way to the march of improvement, being felled to permit the erection of the Knights of Columbus building, adjoining the Cathedral.

Wailea Milling Co., a new North Hilo concern to care for the cane of various growers in that section is projected, with Jas. M. Jamie, manager.

Honolulu's Y. M. C. A. celebrated its 50th anniversary April 30th by a series of jubilant exercises, at which four of the five living organizing members were present to participate.

The United Welfare drive for 1920, mentioned elsewhere, closed its six days' campaign with \$309,500 in sight.

List of Sugar Plantations, Mills and Cane Growers Throughout the Islands.

Those marked with an asterisk (*) are planters only; those marked with a dagger (†) are mills only; all others are plantations complete, owning their own mills. (Corrected to November 1, 1918.)

Name.	Location.	Manager.	Agents.
Apokaa Sugar Co.*	Ewa, Oahu	G. F. Renton	Castle & Cooke, Ltd.
Ewa Plantation	Ewa, Oahu	G. F. Renton	Castle & Cooke, Ltd.
Gay & Robinson*	Makaweli, Kauai	S. Robinson	H. Waterhouse Trust Co., Ltd.
Grove Farm*	Nawiliwili, Kauai	Edwin Broadbent	American Factors, Ltd.
Hakalau Plantation Co.	Hilo, Hawaii	J. M. Ross	C. Brewer & Co., Ltd.
Halawa Sugar Co.	Kohala, Hawaii	H. H. Perry	T. H. Davies & Co., Ltd.
Hamakua Mill Co.	Hamakua, Hawaii	A. Lidgate	T. H. Davies & Co., Ltd.
Hawii Mill and Plantation Co.	Kohala, Hawaii	John Hind	Hind, Rolph & Co.
Hawaiian Agricultural Co.	Kau, Hawaii	Jas. Campsie	C. Brewer & Co., Ltd.
Hawaiian Commercial & Sugar Co.	Punene, Maui	F. F. Baldwin	Alexander & Baldwin, Ltd.
Hawaiian Sugar Co.	Makaweli, Kauai	B. D. Baldwin	Alexander & Baldwin, Ltd.
Hawaii Mill Co.†	Hilo, Hawaii	Jas. Henderson	C. Brewer & Co., Ltd. ¹
Hilo Sugar Co.	Hilo, Hawaii	John A. Scott	C. Brewer & Co., Ltd.
Honolulu Plantation Co.	Halawa, Oahu	Jas. Gibb	C. Brewer & Co., Ltd.
Honokaa Sugar Co.	Honokaa, Hawaii	W. P. Naquin	F. A. Schaefer & Co., Ltd.
Hononu Sugar Co.	Hilo, Hawaii	Wm. Pullar	C. Brewer & Co., Ltd.
Hutchinson Sugar Plantation Co.	Kau, Hawaii	Geo. Gibb	C. Brewer & Co., Ltd.
Kaeleku Sugar Co.	Hana, Maui	J. Chalmers	T. H. Davies & Co., Ltd.
Kahuku Plantation	Kahuku, Oahu	Andrew Adams	Alexander & Baldwin, Ltd.
Kaiwiki Sugar Co.	Ookala, Hawaii	Jas. Johnston	T. H. Davies & Co., Ltd.
Kaiwiki Milling Co.†	Hilo, Hawaii	A. H. Cabrinha	Fred. L. Walron, Ltd. ¹
Kekaha Sugar Co.	Kekaha, Kauai	H. P. Faye	American Factors, Ltd.
Kilauea Sugar Plantation Co.	Kilauea, Kauai	L. D. Larsen	C. Brewer & Co., Ltd.
Kipahulu Sugar Co.	Kipahulu, Maui	J. Fasoth	American Factors, Ltd.
Kohala Sugar Co.	Kohala, Hawaii	Geo. C. Watt	Castle & Cooke, Ltd.

¹ Selling agents.

List of Sugar Plantations, Mills and Cane Growers Throughout the Islands.—Continued.

Name.	Location.	Manager.	Agents.
Koloa Sugar Co.	Koloa, Kauai	E. Cropp	American Factors, Ltd.
Kona Development Co.	Kona, Hawaii	T. Konna	H. Waterhouse Trust Co., Ltd.
Koolau Agricultural Co.*	Koolau, Oahu	S. E. Woolley	Alexander & Baldwin, Ltd.
Laie Plantation*	Laie, Oahu	S. E. Woolley	Alexander & Baldwin, Ltd.
Laupahoehoe Sugar Co.	Laupahoehoe, Haw.	R. Hutchinson	T. H. Davies & Co., Ltd.
Lihue Plantation Co.	Lihue, Kauai	R. D. Moler	American Factors, Ltd.
Makee Sugar Co.	Kealia, Kauai	H. Wolters	American Factors, Ltd.
Maui Agricultural Co.	Haiku, etc., Maui	H. A. Baldwin	Alexander & Baldwin, Ltd.
McBryde Sugar Co.	Wahiawa, Kauai	F. A. Alexander	Alexander & Baldwin, Ltd.
Niuli Mill & Plantation.	Kohala, Hawaii	Robert Hall	T. H. Davies & Co., Ltd.
Oahu Sugar Co.	Waipahu, Oahu	J. B. Thomson	American Factors, Ltd.
Olaa Sugar Co.	Olaa, Hawaii	C. F. Eckart	American Factors, Ltd.
Olowalu Co.	Olowalu, Maui	Alexr. Valentine	C. Brewer & Co., Ltd.
Onomea Sugar Co.	Hilo, Hawaii	John T. Moir	C. Brewer & Co., Ltd.
Paaupahu Sugar Plantation Co.*	Hamakua, Hawaii	F. M. Anderson	C. Brewer & Co., Ltd.
Pacific Development Co., Ltd.*	Pahoa, Hawaii	A. R. Henderson	Fred. L. Waldron, Ltd.
Pacific Sugar Mill (†)	Kukuihaele, Hawaii	W. P. Naquin	F. A. Schaefer & Co., Ltd.
Pepeekeo Sugar Co.	Hilo, Hawaii	Jas. Webster	C. Brewer & Co., Ltd.
Pioneer Mill Co., Ltd.	Lahaina, Maui	A. W. Collins	American Factors, Ltd.
Puakea Plantation Co.	Kohala, Hawaii	Geo. Buckholtz	H. Waterhouse Trust Co., Ltd.
Union Mill Co.	Kohala, Hawaii	D. Forbes	T. H. Davies & Co., Ltd.
Waiakea Mill Co.	Hilo, Hawaii	W. W. Goodale	T. H. Davies & Co., Ltd.
Waialua Agricultural Co.	Waialua, Oahu	E. Brekt	Castle & Cooke, Ltd.
Waianae Plantation	Waianae, Oahu	H. B. Penhallow	J. M. Dowsett
Wailuku Sugar Co.	Wailuku, Maui	Geo. Chalmers, Jr.	C. Brewer & Co., Ltd.
Waimanalo Sugar Co.	Waimanalo, Oahu	C. R. Ewart, Jr.	C. Brewer & Co., Ltd.
Waimea Sugar Mill Co.	Waimea, Kauai		American Factors, Ltd.

HAWAIIAN SUGAR CROPS, IN TONS, 1914-19.

From Tables Prepared for Hawaiian Planters' Association by
its Bureau of Labor and Statistics.

Prior years of this table, originating in 1891, will be found in *Annals*
since 1901.

Islands.	1914	1915	1916	1917	1918	1919
Production of Hawaii	217,654	240,785	197,654	232,132	163,192	207,731
" " Maui	144,940	160,283	150,312	147,648	137,786	133,991
" " Oahu	133,560	129,997	136,966	145,550	162,152	152,883
" " Kauai	120,884	115,380	108,551	119,244	113,712	109,998
Grand Total.....	617,038	646,445	593,483	644,574	576,842	603,583
Hawaii Plantations.						
Waialea Mill Co....	14,922	16,141	14,484	14,876	8,259	11,642
Hawaii Mill Co.....	3,601	3,793	1,845	3,653	2,203	2,763
Hilo Sugar Co.....	18,937	17,905	16,450	16,150	12,834	14,488
Onomea Sugar Co....	19,600	21,320	18,732	21,067	16,923	19,698
Pepeekeo Sugar Co..	9,806	11,948	9,345	11,040	8,281	9,087
Honomu Sugar Co....	8,567	9,852	6,557	9,576	6,685	8,046
Hakalau Plant. Co...	16,863	19,327	15,951	20,235	14,369	18,894
Laupahoehoe Sgr. Co.	11,193	11,730	10,174	11,302	14,626	8,208
Kaiwiki Sugar Co....	6,932	6,849	5,013	7,191	4,625	5,938
Kaiwiki Milling Co...)						1,019
Kukaiau Mill Co.....)	3,225	4,672	3,118	5,056	.....	.....
Hamakua Mill Co....	7,057	9,261	7,661	9,926	5,873	11,084
Paaupau S. Plant. Co.	10,767	10,073	7,859	10,868	5,140	6,843
Honokaa Sugar Co....	7,272	8,613	7,232	9,031	4,696	7,290
Pacific Sugar Mill...	6,250	7,253	5,656	7,970	4,713	6,551
Niuli Mill and Plant.	2,700	3,098	2,110	2,556	2,102	3,296
Halawa Plantation...	2,087	2,840	1,705	2,559	1,310	3,115
Kohala Sugar Co....	4,475	7,780	4,170	6,427	4,349	7,335
Union Mill Co.....	2,608	3,437	1,966	2,392	1,169	2,216
Hawi Mill and Plant..	6,745	9,426	6,461	9,045	3,659	8,077
Kona Developm't Co.	3,477	3,444	144	4,555	1,762	3,205
Hutchinson S. Pl. Co.	5,909	6,781	9,723	6,647	5,645	7,898
Hawaiian Agrl. Co...	17,890	16,407	13,818	12,385	13,067	16,518
Puakea Plantation...	1,035	1,429	963	937	690	1,118
Olaa Sugar Co.....	25,736	27,406	26,476	26,698	20,212	23,402
	217,654	240,785	197,654	232,132	163,192	207,731

HAWAIIAN SUGAR CROPS, 1914-19—Continued.

Maui Plantations.	1914	1915	1916	1917	1918	1919
Kipahulu Sugar Co..	2,126	2,699	848	1,510	1,240	1,730
Kaeleku Plant. Co....	6,225	6,605	6,721	6,240	6,512	5,454
Maui Agrl. Co.....	33,660	39,620	34,011	35,795	30,627	27,908
Hawn. Coml. & S. Co.	56,500	56,780	59,035	53,812	57,750	49,600
Wailuku Sugar Co....	16,100	19,177	15,094	15,038	10,271	16,754
Olowalu Co.	2,027	2,173	1,850	1,974	2,000	1,705
Pioneer Mill Co., Ltd.	28,302	33,229	32,753	33,279	29,386	29,840
	144,940	160,283	150,312	147,648	137,786	132,991
Oahu Plantations.						
Waimanalo Sgr. Co..	5,133	5,260	5,018	4,953	5,303	5,371
Laie Plantation	1,600	1,171	1,541	1,178	1,891	1,042
Kahuku Plant. Co...	8,193	7,823	6,534	8,317	7,830	6,665
Waialua Agrl. Co....	30,298	31,156	31,227	29,941	33,251	30,572
Waianae Co.	0,083	6,400	4,626	6,115	5,815	5,818
Ewa Plantation Co...	29,563	29,502	32,045	34,748	33,841	37,406
Apokaa Sugar Co....	925	356	793	939	690	695
Oahu Sugar Co.....	33,474	29,619	33,625	37,211	50,005	43,980
Honolulu Plant. Co..	20,154	18,233	20,586	21,562	22,042	20,320
Koolau Agrl. Co.....	1,137	487	971	586	1,484	994
	133,560	129,997	136,996	145,550	162,152	152,863
Kauai Plantations.						
Kilauea S. Plant. Co.	6,426	6,733	5,216	5,924	5,335	4,755
Makee Sugar Co.....	10,660	10,944	5,138	13,509	11,641	15,128
Lihue Plantation Co.	22,065	21,492	20,168	20,174	18,424	17,876
Grove Farm Pltn....	4,415	4,007	3,569	3,836	3,790	3,758
Koloa Sugar Co.....	8,572	9,502	7,955	9,206	9,400	9,166
McBryde Sugar Co...	16,345	15,458	15,598	17,407	15,639	17,606
Hawaiian Sugar Co...	26,826	24,706	23,194	23,534	22,673	21,104
Gay & Robinson.....	5,172	5,259	4,650	4,510	5,661	4,340
Waiimea Sgr. Mill Co.	2,258	1,404	2,054	1,965	2,203	1,565
Kekaha Sugar Co....	17,153	15,078	16,107	18,354	17,986	14,700
Estate of V. Knudsen	992	795	902	925	960	.....
Total.....	120,884	115,380	108,551	119,244	113,712	109,998

TERRITORIAL REGISTER AND DIRECTORY FOR 1920.

Corrected to December 1, 1919.

TERRITORIAL OFFICIALS.

Chas. J. McCarthy.....Governor
C. P. Iaukea.....Secretary
H. Irwin.....Attorney General
D. E. Metzger.....Treasurer
L. H. Bigelow.....Supt. Public Works
C. T. Bailey.....Comr. Public Lands
Vaughan MacCaughy..Supt. Pub. Instr.
Manley K. Hopkins.....Auditor
W. P. Jarrett.....High Sheriff
John F. Stone....Secretary to Governor

Jonah K. Kalaniana'ole.....
.....Delegate to Congress

LEGISLATIVE BODY.

SENATORS.

Hawaii—G. P. Kamauoha, J. W. Russell, S. L. Desha, Robt. Hind.
Maui—H. A. Baldwin, Geo. P. Cooke, H. W. Rice.
Oahu—Chas. E. King, C. F. Chillingworth, S. P. Correa, M. C. Pacheco, R. W. Shingle, Jno. Wise.
Kauai—J. H. Coney, Chas. A. Rice.

REPRESENTATIVES.

Hawaii—H. L. Holstein, E. K. Kaaua, Jno. K. Kai, H. J. Lyman, O. W. Rose, E. da Silva, D. K. Kaupiko, H. L. Kawewehe.
Maui—Jno. Brown, Jr., L. L. Joseph, M. G. Paschoal, A. F. Tavares, L. B. Kamehelewa, Ed. Waiaholo.
Oahu—Frank Andrade, Lorrin Andrews, H. K. L. Castle, Jas. K. Jarrett, A. Lewis, Jr., Wm. T. Rawlins, Robt. Ahuna, Geo. H. Holt, Jr., J. S. Kalaikiela, Jonah Kumalae, D. M. Kupihea, E. K. Fernandez.
Kauai—M. K. Aguilar, Jr., J. S. Chandler, Saml. K. Kaalui, Jas. Werner.

NATIONAL GUARD OF HAWAII.

Gov. Chas. J. McCarthy.....
.....Commander in Chief

Department Staff.

Col. H. S. Hayward.....Adjt.-Gen.
Maj. J. M. Camara.....Asst. Adjt.-Gen.
Maj. E. W. Sutton.....Judge Adv.-Gen.
Capt. Lewis B. Reeves....Inspector-Gen.
Maj. Jno. W. Short.....Q. M. Gen.
Maj. Henry Van Gleson.....Q. M. C.
Capt. W. R. Ouder Kirk.....Q. M. C.
Maj. F. L. Morong.....Med. Corps

Department of Judiciary.

SUPREME COURT.

Chief Justice.....Hon. J. L. Coke
Associate Justice.....Hon. S. B. Kemp
Associate Justice.....Hon. W. S. Edings

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.....Hon. Cornell S. Franklin
Second Judge 1st Circuit, Oahu.....
.....Hon. Jno. T. De Bolt
Third Judge 1st Circuit, Oahu.....
.....Hon. James J. Banks
Second Circuit, Maui.....Hon. L. L. Burr
Third Circuit, Hawaii.....
.....Hon. Jas. W. Thompson
Fourth Circuit, Hawaii.....
.....Hon. Clement K. Quinn
Fifth Circuit, Kauai.....
.....Wm. C. Achi, Jr.

CLERKS OF COURTS.

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Asst. Clerk, Supreme Court.....
.....Robt. Parker, Jr.
Stenographer, Supreme Court.....
.....Miss Kate Kelly
Bailiff and Librarian Supreme Court.....
.....Jesse Ululhi
Copyists.....
.....Edith Mossman, Elizabeth Halli

Circuit Court, First Circuit.

Chief Clerk and Cashier...Henry Smith
Assistant Clerks.....
.....B. N. Kahalepuna, Sibyl Davis
Clerks, 1st Judge.....
.....H. A. Wilder, Ralph Hairston
Clerks, 2d Judge.....
.....A. V. Hogan, A. E. Restarick
Clerks, 3rd Judge.....
.....Mrs. Sadie Lovett, Wm. Chillingworth
Stenographers.....J. L.
.....Horner, H. R. Jordan, G. D. Bell
Clerk, Second Circuit, Maui.....
.....H. C. Mossman
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Clerks, Fourth Circuit, Hawaii.....
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Japanese.....J. Noguchi
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Alexr. D. Larnach, Second.....Honolulu
S. Hookano.....Ewa
B. P. Zablan.....Waianae
J. L. Pao.....Koolauloa
E. Hore.....Waiailua
Wm. S. Wond, Second.....Waiailua
J. K. Paele.....Koolaupoko
Henry Cobb Adams, Second.....Koolaupoko

Maul.

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 C. B. Cockett.....Lahaina
 Manuel S. Pacheco.....Makawao
 G. K. Kunukau.....Second, Makawao
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 G. P. Kaulmakaole.....Second, Hana
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 Joseph E. Conradt.....Kalawao
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 W. H. Smith, Second.....South Hilo
 E. K. Simmons.....North Hilo
 R. H. Atkins.....North Kohala
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 R. H. Makekau.....Hamakua
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 David K. Baker.....North Kona
 Robt. Makahalupa.....South Kona

Kauai.

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 Wm. Huddy.....Hanalei
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 E. H. Wodehouse.
 Maui—Wm. Henning, G. Freeland.
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 E. Hawaii—W. Weight, C. R. Shaw,
 Geo. Cool.
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 Registrar of Public Accts. H. C. Hapai
 Dep. Reg. and Bookkeeper. T. Treadway
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 Chas. Girdler, R. B. Reedy, H. A.
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 Honan, Deputies, Honolulu; W. M.
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 F. H. Hayselden.....Ewa and Waianae
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N. and S. Kona
 Robt. Gillespie.....Hamakua
 Samuel P. Woods.....N. Kohala
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 J. K. Kapuniai (deputy).....
Nihiu and Waimea
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 Harbor Master and Pilot, Hilo.....
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John T. Moir, R. T. Guard, T. C. White,
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STRUCTION.

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 T. H. Gibson.....Deputy Supt.
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 Oahu (except Honolulu)—Miss Mar-
 garet Mossman.
 Maui—H. M. Wells.
 Hawaii, West—Bertha B. Taylor; Ha-
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 Kauai—Bernice Hundley.
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 Director Medical Supervision of
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 Director Tuberculosis Bureau.....
 Dr. Ruth McKellar
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 Marriages.....Miss M. Hester Lemon
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 Asst. Clerk.....Albert McGurn
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 Supt. Leper Settlement.....J. D. McVeigh
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 Chief Sanitary Officer, Hawaii—C.
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 Chief Sanitary Officer, Maui — Geo.
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 Chief Sanitary Officer, Kauai—F. B.
 Cook.

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 R. J. McGettigan.....Ewa and Waianae
 Dr. H. B. Cooper.....Alea
 C. Buffett.....Koolauloa
 Dr. F. A. St. Sure.....Koolaupoko
 Maui—
 Dr. Geo. Webb.....Lahaina
 Dr. A. C. Rothrock.....
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Hawaii—

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 B. D. Bond.....N. Kohala
 Dr. C. L. Carter.....Hamakua and S. Kohala
 Dr. W. A. Christensen.....North Hamakua
 L. L. Sexton.....S. Hilo
 Dr. Gurdon Potter.....S. Hilo
 W. D. Whitman.....N. Hilo
 Frederick Irwin.....Puna
 Dr. A. T. Roll.....Kau

Kauai—

- Wm. Dunn.....Waimea
 A. H. Waterhouse.....Koloa
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 Geo. P. Denison.....Second Vice-President
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Organized

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KAUAI CHAMBER OF COMMERCE.

Organized 1913.

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 J. D. McInerny.....Vice-Chairman
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Fred. L. Waldron; W. C. McGonagle (Oahu), W. O. Aiken (Maui), W. H. Rice (Kauai), James Henderson (Hawaii), John Hodges, Secy.

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EXCHANGE.**

Organized August 8, 1898.

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 Vice-President.....W. A. Love
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Re-organized Nov. 18, 1895.

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 Vice-President.....E. F. Bishop
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ERS' ASSOCIATION.**

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 R. C. L Perkins.....Consulting Entomologist
 Otto H. Swezey, F. Muir.....Entomologists
 P. H. Timberlake, F. X. Williams, H. T. Osborn, C. E. Pemberton.....Asst. Entomologists
 H. L. Lyon.....Botany and Forestry
 E. L. Caum.....Asst. Pathologist
 Adolf Holm.....Supt. Forest Nurseries
 E. J. Mooklar, M. L. Hartman.....Assts. in Pineapple Investgtn.
 R. S. Norris.....Sugar Technologist
 W. R. McAllep.....Asst. Sugar Technologist
 P. S. Burgess.....Chemist
 A. Brodie, C. E. Warriner, F. R. Werthmueller, L. L. Lynch, H. A. Wilson.....Asst. Chemists
 J. P. Melanphy.....Fertilizer Sampler
 J. A. Verret, R. S. Thurston, R. M. Allen, Assoc. and Asst. Agriculturists
 W. R. R. Potter.....Illustrator
 W. P. Alexander.....Asst. to Director
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Superintendent.....C. H. Allen
Bookkeeper.....E. J. Rego
Asst. Supt.....Miss Helen Macfarlane
Head Nurse.....Miss Margaret Pepper
Housekeeper.....Mrs. Margaret Coleman
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Vice-Presidents
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Secretary.....C. R. Hemenway
Treasurer.....A. W. T. Bottomley
Auditor.....G. P. Denison
Medical Supt.....A. N. Sinclair, M. B. C. M.
Asst. Supt.....Robt. Anderson
Matron.....Mrs. A. B. Chamberlain
Nurses.....Miss McBryde, Miss Ford
Clerk.....L. J. Fagg

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Vice-President.....E. A. Mott-Smith
Secretary.....Miss A. Budd

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Organized 1853.

Meets annually in December.

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Secretary.....C. H. Atherton
Treasurer.....Jno. Waterhouse
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Established 1902.

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Secretary.....Mrs. B. L. Marx
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Organized March.

Incorporated June 24, 1879.

President.....Prof. M. M. Scott
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Maud Jones, Alice E. Burnham.....Assts.
Mary F. Carpenter.....Cataloguer
Carrie P. Green.....Reference Librarian
Mary S. Lawrence.....Children's Librarian
Jorjine Jensen.....Asst. Ch. Lib.
Akana K. Ma.....Clerk
Helen J. Stearns.....Islands Dept.

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Organized Jan. 11, 1892.

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 Vice-Presidents.....A.
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 Recording Secty.....Ed. Henriques
 Cor. Secretary.....W. D. Westervelt
 Treasurer.....Jno. L. Fleming
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KAUAI HISTORICAL SOCIETY.

President.....Wm. Hyde Rice
 Vice-President.....J. M. Lydgate
 Sec.-Treas.....Miss E. N. Wilcox

BERNICE PAUAAH BISHOP MUSEUM.

Board of Trustees.

Albert F. Judd.....President
 E. F. Bishop.....Vice-President
 Wm. Williamson.....Secretary
 J. M. Dowsett.....Treasurer
 W. O. Smith, H. Holmes, R. H. Trent.

Museum Staff.

William T. Brigham, A. M., D. Sc...
 Director Emeritus
 Herbert Ernest Gregory, Ph.D. (Yale),
 Silliman Prof. of Geology Yale
 Univ.....Acting Director
 W. H. Dall, D. Ph. Hon. Cur. of Molusca
 John F. G. Stokes.....
 Curator of Polynesian Ethnology
 C. Montague Cooke, Jr., D. Ph.....
 Curator of Pulmonata
 C. N. Forbes.....Curator of Botany
 Otto H. Swezey.....
 Hon. Curator of Entomology
 Miss E. B. Higgins (on leave).....
 Librarian
 Miss C. G. Dickerman.....Actg. Librarian
 Mrs. H. M. Helvie.....
 Superintendent of Exhibition Halls
 Mrs. L. Webb.....Asst.
 Superintendent of Exhibition Halls
 J. W. Thompson.....Artist and Modeler

BAR ASSOCIATION OF HAWAII.

Organized June 28, 1899.

President.....S. B. Dole
 Vice-President.....W. T. Rawlins
 Secretary.....E. W. Sutton
 Treasurer.....A. M. Cristy

HAWAIIAN PHILATELIC SOCIETY.

Organized April 13, 1911.

President.....Capt. E. H. Parker
 Vice-President.....C. D. Wright
 Secretary.....C. J. Cooper
 Treasurer.....E. M. Ehrhorn
 Librarian.....E. L. Caum
 Supt. Junior Soc.....A. F. Cooke

Y. M. C. A. CHESS CLUB.

Organized Oct. 17, 1913.

President.....C. H. Medcalf
 Vice-President.....H. W. Vaughan
 Secretary.....H. C. Jewell
 Treasurer.....H. B. Campbell

HAWAIIAN MEDICAL ASSOCIATION

Organized May 24, 1895.

President.....Dr. A. F. Jackson
 Vice-President.....Dr. F. L. Putnam
 Secretary.....Dr. G. A. Batten
 Treasurer.....Dr. A. K. Hanchett

HAWAIIAN SOCIETY SONS OF THE AMERICAN REVOLUTION.

Organized June 17, 1895.

President.....
 Vice-President.....G. P. Wilder
 Secretary.....J. T. Taylor
 Treasurer.....L. M. Judd
 Registrar.....E. T. Winant
 Board of Managers—W. J. Forbes.

AMERICAN LEGION—HONOLULU BRANCH.

Organized Sept. 4, 1919.

Commander.....Leonard Withington
 Vice-Commander.....J. Jorgensen
 Adjutant.....Henry P. O'Sullivan
 Finance Officer.....A. B. Clark
 Historian.....Mrs. Dorothy B. Harper
 Master-at-Arms.....J. T. McGowan
 Chaplain.....Rev. Fr. Valentin

ALOHA CHAPTER, DAUGHTERS OF THE AMERICAN REVOLUTION.

State Regent.....Mrs. Hermann Hugo
 Chapt. Regent.....
 Vice-Regent.....Mrs. J. M. Atherton
 Recording Sec.....Miss Zella Breckenridge
 Treasurer.....Mrs. J. W. Caldwell
 Registrar.....Miss Mary Burbank
 Historian.....Mrs. Jas. Guild
 Chaplain.....Mrs. A. H. B. Judd

HAWAIIAN EVANGELICAL ASSOCIATION.

Originally Organized 1823.

Constitution revised 1863. Annual Meeting June.

President.....F. J. Lowrey
 Vice Presidents.....
 A. C. Alexander, Walter F. Frear
 Cor. Secty.....Rev. H. P. Judd
 Rec. Secretary.....Rev. J. L. Hopwood
 Treasurer.....Theo. Richards
 Auditor.....M. C. Copeland

WOMAN'S BOARD OF MISSIONS.

Organized 1871.

President.....Mrs. Theo. Richards
 Vice-Presidents—Miss Alice Knapp, Mrs.
 H. P. Judd.
 Recording Secty.....Dorothy C. Rowell
 Home Cor. Secty.....Mrs. Edgar Wood
 Foreign Cor. Secty.....Miss A. E. Judd
 Treasurer.....Mrs. E. L. Dillingham
 Asst. Treasurer.....Miss C. C. Varney
 Auditor.....W. J. Forbes

MISSION CHILDREN'S SOCIETY.

Organized 1851. Annual Meeting June.

President.....W. W. Chamberlain
 Vice-President.....Geo. P. Cooke
 Secretary.....Mrs. R. W. Andrews
 Recorder.....R. W. Andrews
 Treasurer.....L. A. Dickey

YOUNG MEN'S CHRISTIAN ASSOCIATION.

Organized 1869. Annual Meeting April.

President.....R. H. Trent
 Vice-President.....H. G. Dillingham
 Treasurer.....R. A. Cooke
 Rec. Secretary.....Chas. F. Clemons
 Executive Secty.....Arthur E. Larimer
 Associate Gen. Sec.....L. R. Killam
 Associate Secty.....Robt. E. Stone
 Business Secty.....Floyd H. Emmans
 Educational Secty.....Rolla K. Thomas
 Physical Director.....C. A. Pease
 Membership Secty.....J. W. McCrillis
 Community Boys' Secy.....Saml. W. Robley
 Boys' Dept. Secty.....W. W. Shavar

Nuuanu Department.

Chairman.....R. H. Trent
 Vice-President.....Dr. I. Mori
 Treasurer.....W. A. Love
 Rec. Secty.....Yap See Young
 Executive Secty.....L. R. Killam
 Associate Secty.....F. I. Ambler
 Educational Secty.....Geo. R. Loehr

ARMY AND NAVY Y. M. C. A.

Organized Aug. 3, 1917.

District Headquarters Staff.

Urban Williams.....Executive Sec.
 I. D. Vayhinger.....Business Sec.
 R. N. Corbaley.....Accountant
 E. D. Bayerle-M. M. Morgan.....Asst. Secs.
 H. W. Metcalf.....Educational Sec.

Schofield Barracks No. 1.

R. W. Thacker.....Camp Secretary
 J. W. Wadman.....Religious Work Sec.
 Carl Bingman.....Building Secretary
 H. W. Page.....Camp Physical Director

Schofield Barracks No. 2.

Henry A. Rudin.....Building Secretary
 Fort Kamehameha.

Bryan D. Beck.....Building Secretary
 Fort Ruger.

G. A. Wesson.....Building Secretary

YOUNG WOMEN'S CHRISTIAN ASSOCIATION.

Organized 1900.

Hon. President...Mrs. E. L. Dillingham
 President.....Mrs. F. C. Atherton
 Secretary.....Mrs. C. M. Cooke, Jr.
 Cor. Secretary.....Mrs. W. F. Frear
 Treasurer.....Mrs. I. J. Shepherd
 Gen. Secty.....Miss Grace Channon

FREE KINDERGARTEN AND CHILDREN'S AID ASSOCIATION.

Organized 1895.

President.....Mrs. F. M. Swanzy
 Vice-Presidents.....
 Mrs. W. F. Frear, Mrs. Theo. Richards
 Recording Secty.....Mrs. I. M. Cox
 Treasurer.....Mrs. E. A. Rath
 Auditor.....J. L. Cockburn

ASSOCIATED CHARITIES.

Organized June 7, 1899.

President.....Jas. L. Cockburn
 Vice-Presidents.....S. B. Dole,
 Mrs. F. W. Macfarlane, Mrs. A.
 C. Alexander and Mrs. A. F. Wall
 Treasurer.....G. C. Potter
 Secty. and Manager.....Miss B. E. Smith
 Auditor.....Henry Davis

STRANGERS' FRIEND SOCIETY.

Organized 1852. Annual Meeting June.

President.....Mrs. A. Fuller
 Vice-President.....Mrs. A. A. Young
 Secretary.....Mrs. S. M. Damon
 Treasurer.....Mrs. E. W. Jordan
 Auditor.....E. W. Jordan
 Directress.....Mrs. E. B. Waterhouse

BRITISH BENEVOLENT SOCIETY.

Organized 1869.

President (ex-officio)...H.B.M.'s Consul
 Vice-President.....Rev. Wm. Ault
 Secretary.....W. C. Shields
 Treasurer.....H. B. Sinclair

HAWAIIAN HUMANE SOCIETY.

President.....Mrs. W. W. Thayer
 Vice-Presidents.....Mrs. E. P. Low, Al-
 bert Horner, Mrs. Clifford Kimball
 Secretary.....Mrs. A. W. Van Valkenburg
 Treasurer.....Mrs. E. A. Mott-Smith
 Auditor.....Herbert Dowsett
 Agent.....Miss M. L. Smith
 Hon. Agent.....Miss Lucy K. Ward

OAHU CEMETERY ASSOCIATION.

President.....F. J. Lowrey
 Vice-President.....S. G. Wilder
 Secretary.....H. H. Walker
 Treasurer.....Hawaiian Trust Co.

THE OUTDOOR CIRCLE.

(For the beautifying of Honolulu.)

President.....Mrs. A. G. M. Robertson
 1st Vice-President.....Mrs. C. J. McCarthy
 2d Vice-President.....Mrs. Eric Knudsen
 Secretary.....Mrs. W. L. Moore
 Treasurer.....Mrs. Z. K. Myers
 Ex. Officer.....Mrs. A. E. Murphy

PACIFIC CLUB.

Organized 1852. Premises on Alakea Street, two doors below Beretania.

President.....E. I. Spalding
 Vice-Presidents.....
 J. N. S. Williams, J. O. Carter
 Secretary.....R. E. McGrew
 Treasurer.....W. H. McInerney

HAWAIIAN VOLCANO RESEARCH ASSOCIATION.

President.....L. A. Thurston
 Vice-President.....W. D. Westervelt
 Vice-President.....C. M. Cooke
 Treasurer.....L. T. Peck
 Secretary.....L. W. de Vis-Norton
 Observatory Director.....
Dr. T. A. Jaggard, Jr.

COMMERCIAL CLUB OF HONOLULU. Organized Aug. 30, 1906.

President.....Ed Towse
 Vice-President.....A. Gartley
 Secretary.....E. B. Clark
 Treasurer.....A. S. Guild

ROTARY CLUB.

President.....L. Tenney Peck
 Vice-President.....
 Secretary.....A. H. Tarleton
 Treasurer.....J. T. Warren

BRITISH CLUB.

President.....Fred. J. Waldron
 Vice-Presidents.....
Peter E. Tosh, G. B. Marshall
 Secretary.....J. Hay Wilson
 Treasurer.....S. J. C. Todd
 Associate Treasurer.....Robt. Hair
 Auditor.....H. D. Young

COUNTRY CLUB. Organized 1906.

President.....W. H. McInerny
 Vice-President.....A. G. Smith
 Secretary.....G. H. Ruttoloh
 Treasurer.....Wm. Simpson

OUTRIGGER CLUB. Organized May, 1908.

President.....Warren Dease
 Vice-President.....J. M. Westgate
 Secretary.....W. J. Dickson
 Treasurer.....F. C. Bailey
 Captain.....G. D. Center

WOMEN'S AUXILIARY.

President.....Mrs. F. M. Swanzy
 Vice-President.....Mrs. A. Fuller
 Treasurer.....Mrs. W. J. MacNiel
 Secretary.....Mrs. W. A. Wall

HONOLULU ART SOCIETY. Organized Nov. 7, 1919.

President.....B. L. Marx
 Vice-President.....A. L. Dean
 Secretary.....Mrs. R. N. Burnham
 Chairman Finance Com...White Sutton

HAWAIIAN ASSOCIATION, A. A. U.

President.....Geo. David Center
 Vice-President.....P. F. Lee
 Sec.-Treas.....Mrs. F. L. Leo
 Registration Com.—B. H. Clark.

AD CLUB.

President.....P. M. Pond
 Vice-President.....Thos. Sharp
 Secretary.....W. F. Schulte, Jr.
 Treasurer.....C. K. Medcalf

HONOLULU FIRE DEPARTMENT.

Originally organized 1851, and conducted as volunteers till March 1, 1893, when it was changed to a paid dept.

Chief Engineer—Chas. Thurston.
 Asst. Engineer—Wm. Blaisdell.
 Engine No. 1—Location Central Station, cor. Fort and Beretania streets.
 Engine No. 2—Location, Central Station, cor. Fort and Beretania Sts.
 Chemical Co. No. 1—Location, Central Station, cor. Fort and Beretania Sts.
 Hook and Ladder Truck—Location, Central Station, cor. Fort and Beretania.
 Engine Co. No. 3—Location cor. Wilder avenue and Piikoi street.
 Engine Co. No. 4—Location King street and Austin lane
 Engine Co. No. 5—Location Kaimuki.

OAHU COLLEGE.

Officers.

A. F. Griffiths, A.M.President
 Levi C. Howland, Asst. to the President

Academy Faculty.

Ernest T. Chase.....Principal
 Susan G. Clark.....Latin
 Charlotte P. Dodge.....
History and Mathematics
 Isabella A. Farlinger.....
Stenography and Typing
 Dorothy Granger.....
Stenography and Typing
 Mrs. Edith Guild.....Office Secretary
 Catherine Johnson.....Office Secretary
 Mrs. Fred. Kirchhoff.....French
 Wilbur J. MacNeill.....Science
 Wm. H. Mather.....
 Bookkeeping and Head Coml. Dept.
 May Belle McCandliss.....French
 Mary C. Porter.....English
 Mrs. Eda Schmutzler.....French
 Chas. F. Schmutzler.....
German and Mathematics
 Arthur L. Silverman.....English

Elementary School.

Mary P. Winne.....Principal
 Emma Barnhard.....Grade 1
 Gertrude Blake.....Office Secretary
 Florence N. Carter.....Grade 2
 Lucy L. Doggett.....Grade 4
 Blanche M. Folsom.....Grade 5
 Viola Gandrup.....Inter.
 Carolyn E. Graves.....Grade 1
 Anna F. Johnson, Grade 6 & Vice-Prin.
 Adele McCord, Grade 3 & Phys. Traing.
 Gladys E. McRae.....Grade 5
 Beatrice Perry, Grade 5 & Penmanship
 Edith F. Phillips.....Inter.
 Maurine Samson.....Grade 3
 Mattie A. Sawyer.....Grade 6
 Bertha E. Smith.....Inter. 3-4
 Claire H. Uecker.....Grade 1
 Ruth D. Woodford.....Grade 4

Junior Academy.

Arthur E. Robinson.....Principal
Olive H. Brosius.....Phys-
iology, English, History, Geography
Frances A. Clark.....Office Secretary
Helen E. Hasty.....History
Alice M. Hayward.....English, History, Geography
Evangeline Holmes.....Mathematics
Mrs. Sara Hull.....English
Otto B. Loewen.....Mathematics
Helen Platt.....French
Sue A. Ross.....English, History, Civics
Merna M. Sawyer.....Mathematics
Daisy D. Spry.....Latin
Mrs. Ruth H. Thompson.....Science

Music School.

Frank Moss.....Director
Helen G. Caldwell.....Piano and Voice
Edwin H. Ideler.....Violin
Mrs. Pearl S. Ideler.....Piano
Mme. Jeanne Jomelli.....Voice
Emily L. Parrish.....Piano
Dorothy Pasmore.....Cello
Mary Pasmore (Mrs. Burrell).....Violin
Frances Tipton.....Piano and Voice

Special Teachers.

Frank Barwick.....Gardener
Edna M. Allison.....Nurse
Lester T. Hull.....Manual Training
Neleta Hain.....Art
Dora L. Kirwin.....Oral Expression
Madaline V. McMahon.....Physical Training
Frances L. Mowry.....Cooking & Sewing
Mrs. Doremus Scudder.....
.....Principal Boarding Dept.
Jane L. Winne.....School Music
May Worthington.....
.....Matron and Director Cafeteria
Alice B. Radcliffe.....Librarian
Kate Singlehurst.....Asst. Librarian
Major Seigle.....Military Training
H. G. Wooten.....Engineer

BOARD OF REGENTS, COLLEGE OF HAWAII.

Wallace R. Farrington.....Chairman
Arthur L. Dean.....Secretary
Regents—Alonzo Gartley, C. R. Hemenway, Mrs. J. R. Ashford, A. G. Smith.

The Faculty.

Arthur L. Dean, A.B. (Harvard '00), Ph.D. (Yale '02).....
.....Pres. and Prof. of Chemistry
John S. Donaghy, A.B. (Marietta '89) A.M. (Marietta '97).....
.....Prof. of Mathematics & Astronomy
John M. Young, B.S. (Univ. Florida '98), M.E. (Cornell '02), M.M.E. (Cornell '04).....Professor of Engineering, Engineer for the College
Arthur R. Kellar, C.E. (Cornell '03), LL.B. (National Univ. '06), S.M. C.E. (Harvard '16), M.S. (Mass. Inst. Tech. '16).....
.....Prof. of Civil Engineering
Frank T. Dillingham, N.S. (Worcester Polytechnic Inst. '01), M.A. (Yale '16).....Prof. of Chemistry
Arthur L. Andrews, B.L. (Cornell

'93), M.L. (Cornell '95), Ph.D. (Cornell '02).....Professor of English & Secty. of the College
Joseph F. C. Rock (Vienna Univ., Austria).....Prof. Systematic Botany
Minnie E. Chipman (Woman's Art School, N.Y.).....
.....Prof. of Ceramics and Design
Arnold Romberg, A.B. (Univ. of Texas '10), Ph.D. (Harvard '15).....
.....Prof. of Physics
Louis A. Henke, B.S. (Univ. of Wisconsin '12).....Prof. of Agriculture
David L. Crawford, B.A. (Pomona '11), M.A. (Stanford '12).....
.....Prof. of Entomology
William C. Furer, B.S. (Mass. Inst. of Tech. '06).....
.....Actg. Prof. of Civil Engineering
Richard Wrenshall, Ph.B. (Yale '12), Ph.D. (Yale '15).....
Mae L. Wells, B.S. (Columbia '14), A.M. (Columbia '18).....
.....Asst. Prof. of Household Science
Anna von Balzer Dahl (formerly head of Vienna School of Costume Designing, S.F.).....
.....Asst. Prof. of Textiles and Design
John Howard Midkiff, B.S. (Univ. Illinois '17).....Asst. Prof. Agriculture
Mildred M. Yoder, Ph.B. (Oberlin '94).....Instructor in History
Alice E. Harbaugh.....
.....Asst. in Drawing and Ceramics
Irving O. Pecker, A.B. (Boston Univ. '12), Alliance Francaise, Sorbonne, Paris.....
.....Prof. of Romantic Languages
Herbert F. Bergman, B.S. (Kansas Agric. Col. '05), M.S. (Univ. of Minn. '15), Ph.D. (Univ. of Minn. '18).....
Clara F. Hemenway.....Librarian
Capt. Edward A. Williford, U.S.A.
.....Military Instructor
Frances D. Smith.....
.....Physical Instructor for Women
W. R. McAllen.....Lecturer, Sugar Mfg.
Shirley F. Allen.....Asst. Instr. in English

MID-PACIFIC INSTITUTE.

Rev. J. L. Hopwood.....President
Boys' Department (Mills School).

John F. Nelson.....Principal
Miss Edna Byrd, A. B. Given, Frank Hluboky, Chas. W. Herron, Miss Edna Lochridge, R. E. Mathis, Miss Beulah Stebno, Geo. H. Sueoka, Miss Hazel Woodruff, Miss Elizabeth Appleton, Bruce A. Cumming, Earl V. Harlow, Miss Elizabeth J. Jones, Cecil C. Martin, Miss Austa McKittrick, Mrs. J. F. Stone, Miss Bessie R. Wood, Arthur E. Wyman.

Girls' Department (Kawaihahao Seminary)

Miss Anna M. Reid.....Principal
Misses Lena Babcock, Leonora J. Clark, Roselle F. Faast, Norma Underhill, Emily F. Wells, Mrs. Harold H. Yost; Misses Elizabeth R. Campbell, Edith V. Currier, Mary F. Kinney, Mary F. Varley, Dora Wood.

FACULTY AND ASSISTANTS OF KAMEHAMEHA SCHOOLS.

E. C. Webster.....President
School for Boys.

E. G. Bartlett.....Acting Principal
Teachers—U. Thompson (a), J. J. Mengel, M. E. Crosman, E. E. Baty, R. J. Borden, Emma E. Winslow, Frank Taylor, Zella M. Breckenridge, George A. Andrus, Harriet Shellenberger, W. H. A. Craddock, Harold P. Luscomb, Robert H. Lowrie, Major T. B. Seigle.

Preparatory Department

Alice E. Knapp (a).....Principal
Maude Post.....Acting Principal
Teachers—Nevada Moore, A. G. Hottendorf, Mrs. Susie E. Davis, Inez F. Hecker, Ruth Ketcham.

School for Girls

Abbie H. Newton.....Principal
Teachers—Frances E. Lemmon, Carolyn Church (a), Katharine Burgner, Ora L. Saunders (a), Evelyn Fisher, Anna Dale Schwartz, Winnifred Love, Emily V. Moore, Edna M. Cobb, Dorothy H. George, Lydia J. Williamson, E. Virginia Richards.

Other Officers and Assistants.

H. E. King..Accounting & Purchg. Agt.
Robert E. Stone.....Chaplain
John T. Livesey.....Storekeeper
Office Staff—Lydia K. Aholo, Berlinda K. Murray, Joseph A. Pekelo, Rose E. Latschar, Margarethe Dower, Alberta Worthington, Esther Mahe-lona, Mrs. Grace Bartlett.

Boarding Departments.

Matrons—Harriet E. McCracken, Bertha L. Van Auken, A. Edith Clay-bourne.

Matrons' Assistants—Eliza Nainoa, Daisy Bell, Harriet Aki, Franzella B. Cable, Katherine Groves.

Health Department.

Dr. E. D. Kilbourne.....Physician
Dr. Dai Yen Chang.....Dentist
Nurses—Josephine Marquardt, L. Edith Livingston, Cella R. Shuster.

(a) On leave of absence for year 1919-20.

PRINCIPAL PUBLICATIONS.

Sunday Advertiser, issued every Sunday morning by the Advertiser Pub. Co., Ltd. Edwd. P. Irwin, Editor.

The Daily Pacific Commercial Advertiser, issued by the Advertiser Pub. Co. every morning (except Sunday). Edwd. P. Irwin, Editor.

The Honolulu Star-Bulletin, issued every evening (except Sundays), by the Honolulu Star-Bulletin, Ltd. K. A. McNally, Editor. Semi-weekly issued on Mondays and Thursdays.

The Guide, issued every Tuesday and Friday morning by the Guide Pub. Co.

The Friend, Organ of the Hawaiian Board, issued monthly. F. S. Scudder, Managing Editor.

The Hawaiian Church Chronicle, issued on the first Saturday of every month. Rt. Rev. H. B. Restarick, Editor.

The Paradise of the Pacific, issued monthly. Mrs. E. A. Langton-Boyle, Editor-Publisher.

The Mid-Pacific Monthly, an illustrated descriptive magazine. Alex. Hume Ford, Editor and Publisher.

The Hawaiian Forester and Agriculturist, issued monthly under direction of Board of Com. Agr. and Forestry. Daniel Logan, Editor.

Hawaii Educational Review, issued monthly. Vaughan MacCaughy, Editor.

The Kuokoa (native), weekly, issued every Friday morning by the Hawaiian Gazette Co., Ltd. Solomon Hanohano, Editor.

Aloha Aina (native), issued every Saturday. E. K. Hanapi, Editor.

Ke Alakai o Hawaii (native), issued each Friday, Jonah Kumalae, Editor.

O Luso (Portuguese), issued weekly on Saturdays. A. H. R. Viera, Editor.

Chee Yow Shin Bo (The Liberty News), tri-weekly, Chinese.

Sun Chung Kwock Bo, tri-weekly. Chinese.

Hawaii Shinpo, issued daily in Japanese. H. Tsurushima, Editor.

The Daily Nippu Jiji, Y. Soga, Editor, issued by the Nippu Jiji Co., Ltd.

Hilo Daily Tribune, issued by the Tribune Pub. Co., George Mellen, Editor.

The Daily Post-Herald, issued at Hilo by the Post-Herald, Ltd. V. L. Stevenson, Editor.

The Maui News, issued weekly at Wailuku, Maui. Wm. J. Cooper, Editor.

The Waiuku Times, Maui, issued weekly on Tuesday, A. V. Vetleson, Publisher.

The Garden Island, issued weekly at Lihue, Kauai. K. C. Hopper, Managing Editor.

Hoku o Hawaii, issued on Friday of each week, at Hilo. Rev. S. L. Desha, Editor.

THE HAWAIIAN ANNUAL, issued the latter part of December for the following year. Thos. G. Thrum, Editor and Publisher.

HONOLULU LODGES, ETC.

Lodge le Progres de l'Océanie No. 371, F. & A. M.; meets on the last Monday in each month in Masonic hall.

Hawaiian Lodge, No. 21, F. & A. M.; meets in its Hall, Masonic Temple, corner Hotel and Alakea streets, on the first Monday in each month.

Honolulu Chapter, No. 1, R. A. M.; meets in Masonic Hall on the second Thursday of each month.

Honolulu Commandery, No. 1, Knights Templar; meets in Masonic Hall on third Thursday of each month.

Mystic Shrine, Aloha Temple. No stated time of meeting. Meets at Masonic Hall.

Kamehameha Lodge of Perfection, No. 1, A. & A. S. R.; meets in Masonic Hall on the fourth Thursday of each month.

Nuuanu Chapter of Rose Croix, No. 1, A. & A. S. R.; meets in Masonic Hall on the first Thursday in the month.

Alexander Liholihi Council, No. 1, of Kadosh; meets on the third Monday of alternate months from February.

Honolulu Lodge, No. 409, F. & A. M.; meets at Masonic Hall every second Monday of the month.

Leahi Chapter, No. 2, Order of the Eastern Star; meets on third Monday of each month in Masonic Hall.

Lei Aloha Chapter, No. 3, Order of the Eastern Star; meets on second Saturday of each month in Masonic Temple.

Harmony Chapter, No. 4, Order of the Eastern Star, meets on third Saturday of each month in Masonic Temple, at 7:30 p. m.

Excelsior Lodge, No. 1, I. O. O. F.; meets at the hall in Odd Fellows' Building, on Fort St., every Tuesday evening.

Harmony Lodge, No. 2, I. O. O. F.; meets each Monday evening in Odd Fellows' Building, Fort street.

Pacific Degree Lodge, No. 1, Daughters of Rebekah; meets in Odd Fellows' Building, Fort street, second and fourth Thursdays of each month.

Olive Branch Rebekah, No. 2, I. O. O. F.; meets first and third Thursdays each month in Odd Fellows' Building.

Polynesian Encampment, No. 1, I. O. O. F.; meets in Odd Fellows' Building, Fort street, first and third Fridays of each month.

Canton Oahu, No. 1, P. M., I. O. O. F.; meets second Friday each month in Odd Fellows' Hall, Fort St.

Mystic Lodge, No. 2, K. of P.; meets every Friday evening at Pythian Hall, cor. Beretania and Fort streets.

Section N. 225—Endowment Rank, K. of P.; meets on the second Saturday of January, July and December in Pythian Hall.

Honolulu Temple, No. 1, Rathbone Sisters; meets in Pythian Hall, first and third Tuesday evenings of each month.

Wm. McKinley Lodge, No. 8, K. of P.; meets first and third Tuesday evenings in Pythian Hall.

Hawaiian Tribe, No. 1, I. O. Red Men; meets on first and third Thursdays of each month in San Antonio Hall.

Court Lunaillo No. 6600, A. O. of Foresters; meets in Phoenix Hall on first and third Wednesdays of each month.

Court Camoes No. 8110, A. O. F.; meets second and fourth Tuesday evenings of month in San Antonio Hall.

Theo. Roosevelt Camp, No. 1, Dept. of Hawaii, U. S. W. V.; first and third Saturdays each month at Ft. Shafter.

Honolulu Nest No. 1766, Order of Owls.; meets on the second and fourth Tuesdays of each month at 7:30 p. m. in Phoenix Hall. Visiting Owls are requested to attend.

Capt. Cook Lodge, No. 353, Order Sons of St. George; meets at Pythian Hall second and fourth Thursday each month.

Court Hawaii, No. 3769, Independent Order of Foresters, meets third Monday of each month.

Damien Council, Young Men's Institute; meets second and fourth Wednesdays of each month at Catholic Mission Hall.

Honolulu Lodge, B. P. O. Elks, 616; meets every Friday evening in the Elks' Building, King street near Fort.

Honolulu Aerie, No. 140, Fraternal Order of Eagles, meets second and fourth Wednesdays each month in K. of P. Hall.

Honolulu Lodge No. 1, Modern Order of Phoenix; meets every Thursday evening at their home, cor. Fort and Beretania.

Honolulu Lodge, L. O. O. M., No. 800, meets second and fourth Thursdays of the month in Pythian Hall.

American Association of Masters and Pilots of Steam Vessels, Honolulu Harbor, No. 54; meets first Sunday of each month at 7 p. m. in Odd Fellows' Hall.

Marine Engineers' Beneficial Association No. 100; meets every second and fourth Monday nights at K. of P. Hall.

Kamehameha Lodge (native); meets second and fourth Tuesdays of each month in Pythian Hall.

Kaukeaouli Lodge No. 1 (native); meets on first and third Fridays each month in San Antonio Hall.

PLACES OF WORSHIP.

Central Union Church, Congregational, cor. Beretania and Richards streets; Rev. A. W. Palmer, Minister, Rev. E. T. Sherman, associate minister. Services every Sunday at 11 a. m. and 7:30 p. m. Sunday school meets one hour before morning service. Prayer meeting Wednesday evenings at 7:30.

Kalihi Union Church, King street, Kalihi; W. B. Coale, A.B., pastor. Sunday school at 9:45 a. m. Gospel services at 11 a. m. and 8 p. m.

Methodist Episcopal Church, corner Beretania and Victoria streets; Rev. M. H. Alexander, pastor. Sunday services 11 a. m. and 7:30 p. m. Sunday school meets at 10 a. m. Prayer meeting Wednesdays at 7:30 p. m.

The Christian Church, Kewalo street. Dr. A. G. A. Buxton, pastor. Sunday services at 11 a. m. and 7:30 p. m. Sunday school meets at 9:45 a. m. Prayer meeting Wednesday evenings, at 7:30.

Salvation Army, services held nightly at hall, 69 Beretania St., with Sunday services at the usual hour.

Roman Catholic Church, Fort street, near Beretania; Rt. Rev. Libert Boeynaems, Bishop of Zeugma. Services every Sunday at 10 a. m. and 4:30 p. m. Low mass every day at 6 and 7 a. m. High mass Sundays and Saints' days at 10 a. m.

St. Andrew's Cathedral, Protestant Episcopal; entrance from Emma street, near Beretania. Rt. Rev. Henry Bond Restarick, Bishop of the Missionary District of Honolulu; Rev. Wm. Ault, Vicar. Holy Communion, 7; Sunday school, 10; morning prayer, litany and sermon, 11; Hawaiian service, 3:30; evening prayer and sermon, 7:30.

Chinese Congregation. Rev. Kong Yin Tet, Curate. Services on Sunday at 11 a. m. and 7:30 p. m. Evening prayer every Wednesday at 7 p. m.

St. Clement's Chapel, Punahou. Services on Sundays. Holy Communion, 7 a. m. Morning prayer, 11 a. m.; evening prayer, 7:30 p. m. Rev. John Usborne, rector; Rev. C. H. Tracy, vicar.

Epiphany Mission, Kaimuki, Rev. F. B. Eteson, priest in charge. Sunday services at 7:30 and 11 a. m. Sunday school at 10.

First Church of Christ, Scientist, cor. Wilder and Kewalo streets. Sunday services 11 a. m. Sunday school at 9:45.

Christian Chinese Church, Fort street; Rev. Yuen To Pui, pastor. Services every Sunday at 10:30 a. m. and 7:30 p. m. Prayer meeting Wednesdays at 7:30 p. m.

Second Chinese Church (Congregational), Beretania street, Rev. Tse Kei Yuen, pastor. Services at usual hours.

German Lutheran Church, Beretania St.; Dr. A. Hoermann, pastor. Services on Sunday at 11 a. m.; Sunday school at 10 a. m.

Portuguese (Protestant) Mission; Rev. A. V. Soares, pastor. Services every Sabbath at the usual hour. Sunday school at 3 p. m. Chapel situated corner of Punchbowl and Miller streets.

Reorganized Church of Jesus Christ. Chapel on King street, near Thomas Square; Sunday school at 10 a. m.; preaching in Hawaiian at 11 a. m.; in English at 7:30 p. m.

Seventh Day Adventists; Rev. L. L. Hutchinson, pastor. Chapel, Keeau-moku street. Sabbath school Saturdays at 10 a. m.; preaching at 11. Wednesday prayer and missionary meeting at 7:30 p. m.

Japanese Union Church (connected with Hawaiian Board Missions); Rev. T. Hori, pastor. Hold services at 10 a. m. Preaching at 11 a. m. and 7:30 p. m. Sunday services. Prayer and praise meeting Wednesdays at 7 p. m.

Korean Methodist Church, Rev. W. C. Pang, pastor; Punchbowl St. near Beretania. Services at usual hours.

Japanese Methodist Church. Rev. C. Nakamura, pastor. Hold services in chapel on River street, near St. Louis College.

Japanese Church, cor. Kinau and Pensacola Sts., Rev. T. Okumura, pastor; hold regular services at the usual hours.

Bishop Memorial Chapel. Kamehameha Schools. Robt. E. Stone, Chaplain. Morning services at 11.

NATIVE CHURCHES.

Kawalahao Church, cor. King and Punchbowl streets; Rev. Akaike Akana, pastor. Services in Hawaiian every Sunday at 11 a. m. and 7:30 p. m. Sunday school at 10 a. m. Prayer meeting Wednesdays at 7:30 p. m.

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